Contract Documents

Shore Road Bridge Rehabilitation

Winchester, Massachusetts

PREPARED FOR

Town of Winchester
71 Mt. Vernon Street
Winchester, MA 01890
781.721.7133

PREPARED BY

260 Arsenal Place #2
PO Box 9151
Watertown, MA 02472
617.924.1770

April 2025

Contents

Advertisement for Bids

Instructions to Bidders

Form of Bid

Bid Items

General Contract

Wage Rates

Technical Specifications

Section 01 11 00 Summary of Work
Section 01 14 00 Work Restrictions
Section 01 22 00 Unit Prices
Section 01 33 00 Submittal Procedures
Section 01 35 43 Environmental Protection
Section 01 50 00 Temporary Facilities and Controls
Section 01 56 01 Temporary Fencing
Section 01 78 39 Record Drawings
Section 01 89 00 Site Construction Performance Requirements
Section 02 00 00 Existing Utilities and Underground Structures
Section 02 81 00 Transportation and Disposal
Section 03 30 00 Cast-In-Place Concrete
Section 03 41 00 Precast Concrete
Section 03 93 00 Concrete Repairs
Section 31 00 00 Earthwork
Section 31 10 00 Demolition and Site Clearing
Section 31 23 19 Water Management
Section 31 25 00 Erosion and Sedimentation Controls
Section 32 17 23 Pavement Markings
Section 32 92 20 Seeding
Section 34 80 00 Alteration to Bridge Structure No. W-40-029 (2D8)

Appendices

A. Winchester Conservation Commission Order of Conditions DEP #346-598 and Winchester Wetlands Bylaw #598, dated 4/8/25

B. Contract Drawings titled "Shore Road over Aberjona River", prepared by VHB, dated 4/2025

ADVERTISEMENT

ADVERTISEMENT FOR BIDS

SHORE ROAD BRIDGE REHABILITATION (BRIDGE NO. W-40-029)

Sealed lump sum bids will be received by the Town of Winchester Department of Engineering, at 71 Mt. Vernon Street, Lower-Level Town Hall, Winchester, MA 01890, until 9:30 am, on **May 15, 2025** and at that place and time be publicly opened and read aloud. All bidders will be notified of the apparent low bidder. All bidding procedures will be in accordance with the Massachusetts General Laws Chapter 30, Section 39M inclusive as amended.

Prevailing Wages, as determined under M.G.L. c. 149, § 26-27H shall apply on this project. Materials, equipment, and supplies used on this project are exempt from sales tax to the extent provided by M.G.L. c. 64H, § 6(f). The Project is expected to commence on or about **June 15, 2025** and be partially completed, open to traffic and pedestrians by September 1, 2025, and be fully completed no later than **November 30, 2025.** Time is of the essence for the completion of this project.

The Instruction to Bidders, Form of Bid, Form of Contract, Plans, Specifications, and Form of Bid Bond, Performance and Payment Bond, and other contract documents will be available starting **April 30, 2025**. Copies of these documents may be obtained from Accent Blueprint. To access the documents go to www.accentblueprints.com and set up an account. A copy of the plans and specifications is available for review at the Engineering Department, 71 Mt Vernon Street, Winchester, MA 01890.

Bid Deposits shall be submitted in the amount of 5% of the bid price including any alternates. The Bid Deposit shall be made payable to the Town of Winchester and shall be either in the form of cash, certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or a bid bond issued by a surety licensed to do business in the Commonwealth of Massachusetts; and shall be conditioned upon the faithful performance by the principal of the agreement contained in the bid. The Town of Winchester reserves the right to reject or approve a surety. The Bid Deposits of the three (3) lowest responsible and eligible bidders shall be retained until the execution and delivery of the Contract.

The contract will be awarded to the bidder deemed by the Town of Winchester to be the lowest responsible and eligible bidder. Selection of the successful bidder will be based upon bidder qualifications, including evidence of past performance on similar projects, and bid price. The Contract award is subject to the availability of funding.

The successful general bidder will be required to furnish a Performance Bond and a Labor and Materials Bond, each of which shall be in the amount equal to one hundred percent (100%) of the contract price.

The Town of Winchester reserves the right to reject any bid which, in its judgment, fails to meet the requirements of this Advertisement for Bids or which is incomplete, conditional, or obscure, or which contains additions or irregularities, or in which errors occur in addition to the foregoing. The Town of Winchester also reserves the right to reject any and all proposals if it deems such rejection(s) to be in the best interest of the Town. The Town of Winchester further reserves the right to waive any minor discrepancies or informalities, to permit a bidder to clarify discrepancies or to conduct discussions with all qualified bidders in any manner necessary to serve the best interests of the Town. Any fees or other expenses of the bidders associated with this Advertisement for Bid process are solely the responsibility of the bidders.

No bidder may withdraw its bid within sixty (60) days (Saturdays, Sundays and Holidays excluded) after the date designated above for the opening of the bids. Any bid submitted will be binding for sixty (60) days after the time of bid opening.

All telephone calls and correspondence in connection with this Project should be addressed to Kristofer Kretsch, PE, at 617-607-2763 or be emailed to kkretsch@vhb.com.

The Town of Winchester is an affirmative action/equal opportunity employer and encourages participation from certified minority and women-owned businesses in this Advertisement for Bid. The successful bidder must ensure that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, national origin, or any other basis prohibited by law.

Each bidder shall visit the site of the proposed work and shall fully acquaint himself with the conditions as they exist and shall also thoroughly examine the contract documents. Failure of bidder to visit the site and acquaint himself with the contract documents shall in no way relieve the bidder from any obligation with respect to his bid.

INSTRUCTIONS TO BIDDERS

1. GENERAL; DEFINITIONS

a. In accordance with the Advertisement for Bids, a copy of which is bound herewith, the Town of Winchester (the "Owner"), invites sealed bids on the separate copies of Bid Forms furnished for that purpose, for construction of the **Shore Road Bridge Rehabilitation Project** ("Project"). The "Work" consists of the Project as more specifically described in the contract drawings and specifications and shall include all incidental work necessary or customarily done for the completion of the Project.

b. The Bound-in Bid Forms in the Contract Documents are for continuity and the convenience of bidders and are not to be detached from the Contract Documents, filled out or executed.

c. The following definitions shall apply in these Instructions and in the other Contract Documents, unless otherwise specified.

I. The term "bidding documents" shall include the Advertisement for Bids, these Instructions, the bid forms, bond forms, contract forms and other Contract Documents bound herewith, and shall include the Drawings, the Specifications, and all Addenda issued prior to receipt of bids.

II. The term "Contract Documents" shall mean the Contract entered into between the Owner and the successful bidder, including all documents enumerated as Contract Documents in the Agreement between Owner and Contractor, and all Modifications (as defined in the Contract) issued after execution of the Contract.

III. The terms "Addenda" and "Addendum" shall mean written documents and/or drawings issued by the Owner prior to execution of the Contract which supplement, modify, correct, explain or interpret the bidding documents.

2. RECEIPT, OPENING AND REJECTION OF BIDS

a. Bids will be received by the Owner at the Department of Engineering, 71 Mt. Vernon Street, Town Hall, Winchester, Massachusetts, until **Thursday, May 15, 2025 at 9:30 a.m.** and then at said office publicly opened and read aloud.

b. The Owner reserves the right to:

I. Reject any proposal which is not accompanied by the required bid deposit or which, in the Owner's judgment, fails to meet the requirements of the Advertisement for Bids, the Instructions or statutory requirements, or which is incomplete, conditional, or obscure, or which contains additions or irregularities, or in which errors occur in addition to the foregoing;

II. Reject any and all proposals if it deems such rejection(s) to be in the best interest of the Owner;

III. Consider informal and reject any bid which contains erasures, alterations, additions, errors or irregularities of any kind, or which contains proposed prices for any class or item of work which are, in the judgment of the Town, substantially less or more than the actual cost to complete the Work as that term is defined in the Contract Document; or

IV. Notwithstanding its rights under items 2b(i)-(iii) above, waive any minor discrepancies or informalities, to permit a bidder to clarify discrepancies or to conduct discussions with all qualified bidders in any manner necessary to serve the best interests of the Owner.

Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within sixty (60) days after the actual date of the opening thereof.

3. CONTRACT AWARD

The Owner will award the contract to the lowest eligible and responsible bidder within thirty business (30) days, after (i) the opening of bids or (ii) the receipt by the Owner of any approvals necessary from Federal or State agencies in connection with the project, whichever is later. As used herein, the term "lowest responsible and eligible bidder" shall mean the bidder (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work as further described in the Contract Document; (2) who shall certify that he is able to furnish labor that can work in harmony with all elements of labor employed or to be employed in the Work; and (3) who obtains within ten (10) days of the notification of contract award the security required under Section 7 below.

The successful bidder will be notified in writing, by mail or otherwise, that its bid has been accepted and that it has been awarded the Contract. The successful bidder shall execute the Contract and furnish the required bonds, at the offices of the Town if requested, within ten (10) days after presentation of the contract to the bidder or notice to the bidder that the Contract is ready for execution.

The Owner shall not enter into a contract with, and shall not approve as a subcontractor furnishing labor and materials for a part of any work of this contract, a foreign corporation which has not filed with the Owner a certificate of the Secretary of State of the Commonwealth of Massachusetts stating that such corporation has complied with M.G.L. c. 156D and the date of such compliance. The Owner shall report to said Secretary of State and to the Department of Corporations and Taxation of the Commonwealth of Massachusetts any foreign corporation performing any work under this contract or any such subcontract, and any person, other than a corporation, performing work under this contract or any such subcontract, and residing or having a principal place of business outside the Commonwealth of Massachusetts.

4. PREPARATION OF BIDS

Each bid must be submitted on the prescribed bid forms, must be signed and accompanied by the Non-Collusion Affidavit form, and all Additional Bid Requirements that are supplied to you in the Proposal Package. The bid shall state the legal name of the bidder and shall be signed in ink by a person or persons legally authorized to bind the bidder to a contract.

The name and title of the person or persons signing the bid shall be typed or printed below the signature(s).

All blank spaces for bid prices must be filled in, with ink or typewriter in both words and figures, and all of the foregoing Certifications must be fully completed and executed when submitted. Where required, bid prices for each item on the bid form shall be stated in both words and figures. Where itemized lump sum or unit prices are called for, all such prices shall be provided by the bidder. In the event of a discrepancy between prices written in words and prices written in figures, the written words shall govern.

Each bid must be submitted in a sealed envelope bearing on the outside the name of bidder, his address and the name and contract number of the project for which the bid is submitted. If the bid is mailed, the bidder shall enclose its sealed bid and bid deposit in an outer envelope addressed as follows:

FROM: [Bidder's name and business address]
RE: **Shore Road Bridge Rehabilitation Project**
TO: **Office of the Town Engineer**

All bidders are cautioned to allow ample time for transmittal of bids. Bidders are solely responsible for delivery to and receipt by the Owner of bids by the bid deadline. Bids received after the specified time will not be accepted or recognized. The time of receipt will determine the acceptability of mailed bids, regardless of postmark.

5. EMAIL MODIFICATION

Any bidder may modify his bid by email communication at any time prior to the scheduled closing time for receipt of bids provided such email communication is received by the Owner prior to the closing time and, provided further, the Owner is satisfied that a written confirmation of the email modification over the signature of the bidder was mailed prior to the closing time. The email communication should not reveal the bid price but should provide the addition or subtraction or other modifications so that the final prices of terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two (2) business days after the closing time, no consideration will be given to the email modification.

6. QUALIFICATIONS OF BIDDER

The Contract will be awarded to the lowest bid submitted by a responsible and eligible bidder. As used herein, the term “lowest responsible and eligible bidder” shall mean the following: To be considered “responsible” the bidder shall possess the skill, ability and integrity necessary to faithfully perform the work called for by the Contract, based upon a determination of competent workmanship and financial soundness in accordance with the provisions of M.G.L. Ch. 30 Section 39M. To be considered “eligible” the bidder shall be able to meet all requirements for bidders set forth in M.G.L. Ch. 30, Section 39M and not be debarred from bidding, and shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the Work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. Without limitation, the investigation of a

bidder may seek to determine whether the bidder is authorized to do business in the Commonwealth of Massachusetts, has had relevant previous experience, and has available equipment, forces and financial resources adequate to assure the Owner that the Work will be completed in accordance with the Contract Documents. The Owner may contact references, and may consider evidence of problems with past performance, such as defaults, contract terminations, imposition of damages or other failures to perform. The amount of other Work to which the bidder is committed may also be considered. The scope of the Owner's investigation of any particular bidder shall remain within the Owner's discretion.

To assist the Owner in its investigation of bidder qualifications, each bid **must include** the name of the Superintendent who is to be used on this project, and his/her experience. Each bid **must also include** a comprehensive list of:

1. Any and all citations and/or violations issued by regulatory agencies and/or judgments against bidder from a court of law.
2. All assessed penalties or liquidated damages, and the project in which they occurred.
3. Any and all contract terminations.
4. A list of all projects worked on over the past three years.
5. A list of the total number of supervisors and workers intended to be assigned to this Project.

The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. The Owner's decision or judgment on these matters will be final, conclusive, and binding. Conditional bids will not be accepted.

7. BID SECURITY

Bid Deposits shall be submitted in the amount of 5% of the bid price including any potential alternates. The Bid Deposit shall be made payable to the Town of Winchester and shall be either in the form of cash, certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or a bid bond issued by a surety licensed to do business in the Commonwealth of Massachusetts; and shall be conditioned upon the faithful performance by the principal of the agreement contained in the bid.

All bid deposits, except those of the three lowest responsible and eligible bidders, will be returned within ten (10) business days, after the opening of the general bids. The bid deposits of the three lowest responsible and eligible bidders will be returned upon the execution and delivery of the Contract, or if no award is made, upon the expiration of sixty business (60) days, except that, if any bidder fails to perform his agreement to execute a Contract and furnish a Performance Bond and a Labor and Materials Payment Bond as stated in his bid, his bid deposit shall become the property of the Town of Winchester as liquidated damages; provided that the amount of the bid deposit which becomes the property of the Town of Winchester shall not, in any event, exceed the difference between his bid price and the bid price of the next lowest responsible and

eligible bidder; and provided further that, in case of death, disability or other unforeseen circumstances affecting the bidder, his bid deposit may be returned.

8. TIME OF COMPLETION

Bidder must agree to commence work on a date to be specified in a written "Notice to Proceed" from the Owner and to be partially completed, open to traffic and pedestrians by September 1, 2025 and be fully completed no later than **November 30, 2025.** Time is of the essence for the completion of this project.

9. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

a. It is the responsibility of each bidder before submitting a bid to (1) examine the Bidding and Contract Documents thoroughly; (2) examine the location of the Project to become familiar with local conditions that may affect cost, progress, performance or furnishing of the work; (3) Consider Federal, State, and local laws, regulations, and ordinance that may affect cost, progress and performance of the Work; 4) Notify the Owner of all apparent conflicts, errors, or discrepancies in the Contract Documents.

b. Before submitting a bid, each bidder will be responsible to make or obtain such explorations, tests, and data concerning physical conditions which may affect cost, progress, performance or furnishing of the Work and which the bidder deems necessary to determine its bid for performing the Work in accordance with the time, price, and the terms and conditions of the Contract Documents. Failure of a bidder to visit the site and acquaint itself with the bidding documents or to attend the pre bid conference, if any, shall in no way relieve the bidder from any obligation with respect to its bid or under the Contract if awarded the bid.

c. Owner may, at a bidder's request, provide each bidder access to the site to conduct such explorations and tests as such bidder deems necessary for submission of a bid.

d. The submission of a bid will constitute a representation by the bidder that the bidder has complied with every requirement of the Specification, that without exception the bid is premised upon performing and furnishing the work required.

e. No claim for any extra monies will be allowed because of unintentional error or conflicts in the Contract Documents.

f. The failure or omission of any bidder to examine any form, instrument, or document and to fail to be familiar and visit the site will not relieve a successful bidder of the obligation to furnish all material, labor and equipment necessary to carry out the provisions of the Contract.

10. ADDENDA AND INTERPRETATIONS

No oral interpretation of the meaning of the plans, specification or other bidding documents will be made to any bidder. Every request for such interpretation shall be in writing addressed to **Kristofer Kretsch, PE, VHB, 260 Arsenal Place #2, Watertown, MA 02472, 617-607-2763, kkretsch@vhb.com,** and, to be given consideration, must be received at least

five (5) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications issued not later than two (2) days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addenda or interpretation shall not relieve such bidder from any obligations under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

11. SECURITY FOR FAITHFUL PERFORMANCE

Simultaneously with his delivery of the executed contract, the Contractor shall furnish a surety bond as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be provided by a duly authorized surety company satisfactory to the Owner. The successful general bidder will be required to furnish a Performance Bond and a Labor and Materials Bond, each of which shall be in the amount equal to one hundred percent (100%) of the contract price.

12. POWER OF ATTORNEY

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their powers of attorney.

13. NOTICE OF SPECIAL CONDITIONS

Attention is particularly called to those parts of the Contract Documents and specifications, which deal with the following:

a. Inspection and testing of materials

b. Insurance requirements

c. Wage rates

d. Non-discrimination in employment

e. OSHA 10 Certification

f. HAZWOPER 40-Hour Certification

g. CORI Requirements

14. LAWS AND REGULATIONS

The bidder's attention is directed to the fact that all applicable Federal and State laws, municipal bylaws and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract and the Work throughout, and will be deemed to be included in the Contract the same as though herein written out in full.

The award of the Contract is governed by M.G.L. c. 30, § 39M. Certain provisions of this and other applicable statutes are summarized or referred to in the Instructions to Bidders and other Contract Documents. Whenever any of the Contract Documents set forth or summarize applicable statutory provisions, whether or not the statutes have been specifically referred to, such summaries are for convenience only, do not purport to be complete or correct as summaries

in any material particular, and shall in no respect supersede, expand or limit rights or duties of the Town or bidders in matters governed by statute.

Minimum rates of wages for work performed under this contract will be as determined by the Division of Occupational Safety of the Massachusetts Department of Labor and Work Force Development in accordance with the provisions of M.G.L. c. 149, §§ 26-27H. Attention is called to serious penalties established under law for violation of these provisions. The schedule of wage rate determinations applicable to this contract is included in the bidding documents.

15. PROTECTION AND RESTORATION OF PROPERTY

The Contractor, in constructing or installing facilities alongside or near sewers, drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls or other structures shall, at his expense, sustain them securely in place, cooperating with the officers and agents of the various utility companies and municipal departments which control them so that the services of these structures shall be maintained. He shall also be responsible for the repair or replacement, at his own expense, of any damage to such structures caused by his acts or neglect and shall leave them in the same condition as they existed prior to the commencement of work.

In case of damage to utilities, the Contractor shall promptly notify the Owner and shall, furnish laborers to work temporarily under the Owner's direction in providing access to the utility. Pipes or other structures damaged by the operation of the Contractor may be repaired by the Town of Winchester or by the utility company, which suffers the loss. The cost of such repairs shall be borne by the Contractor without compensation therefore.

It shall be the responsibility of the Contractor to determine location, size, type, etc., of all underground utilities from the Town of Winchester, and utility company concerned and to maintain all utilities in place during construction.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed thereafter.

16. PUBLIC SAFETY AND CONVENIENCE

Attention is directed to the fact that the work on this project is to be performed on properties which are utilized by pedestrians. Contractor shall furnish, install, maintain, and move all warning devices, barricades, signs, flares, bridging materials, special apparel, and other safety measures and controls necessary for the protection of motorists, of pedestrians, and of his own personnel. When, in the judgment of the Owner, construction operations constitute a hazard to traffic in the area, the Contractor may be required to suspend operations during certain hours.

17. SALES TAX

M.G.L. c. 64H, § 6(f) exempts from Massachusetts sales tax building materials and supplies to be used in the Project, and bidders shall not include in their bids any amount therefor. The words “building materials and supplies” shall include all materials and supplies consumed, employed or expended in the construction, reconstruction, alteration, remodeling or repair of any building, structure, public highway, bridge, or other such public work, as well as such materials

and supplies physically incorporated therein. Said words shall also include rental charges for construction vehicles, equipment and machinery rented specifically for use on the site of the Project or while being used exclusively for the transportation of materials for the Project. The number of the certificate granted by the Commissioner of Revenue for use in obtaining the exemption will be given to the successful general bidder. Each bidder shall take this exemption into account in calculating its bid, and shall not include any sales tax on its bid.

18. INTEREST OF MEMBERS, OFFICERS, OR EMPLOYEES OF THE OWNER; MEMBERS OF LOCAL GOVERNING BODY, OR OTHER PUBLIC OFFICIALS

No member, officer or employee of Owner, or its designees or agents, no member of the governing body of the locality in which the project is situated, and no other public officials, member, officer or employee of the Owner, or its designees or agents, no members of the governing body of such locality or localities who exercises any functions or responsibilities with respect to the Project during his tenure or for one year thereafter, shall have any interest, direct or indirect, in any agreement, contract or subcontract, or the proceeds thereof, for Work to be performed in connection with the Project. The Contractor shall incorporate or cause to be incorporated, in all of its agreements, contracts or subcontracts a provision prohibiting such interest pursuant to the purposes of this section.

19. NON-DISCRIMINATION IN EMPLOYMENT

Contract for Work under this proposal will obligate the contractors and subcontractors not to discriminate in employment practices.

Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the Contract.

The successful bidder must be prepared to comply in all respects with the Contract provisions regarding Equal Employment Opportunity.

20. SEPARATE CONTRACTS

a. The Owner reserves the right to perform construction or operations related to the Project under separate contracts, and/or with the Owners' own forces in connection with other portions of the Project or other construction or operations on the site under separate Contract.

b. The Contractor shall cooperate fully with separate contractors with regard to storage of materials and execution of separate contract work, and shall connect and coordinate the separate contractors' construction and operations with the Contractor's as required by the Contract Documents.

c. It shall be the Contractor's responsibility to inspect all separate contractor work affecting the Work and to report to the Owner any irregularities or defects that will not permit completion of the Work in a satisfactory manner.

d. When results of separate contractors' work depend on proper results for the Contractor's Work, the Contractor shall immediately report to the Owner or Engineer any discrepancies or defects that would be unsuitable for proper execution of the Work.

e. It shall be the responsibility of the Contractor to measure the completed work in place and report to the Owner immediately any difference between completed work by others and the Drawings.

f. The Contractor's failure to notify the Owner of such irregularities shall indicate the separate contractors' work has been satisfactorily completed to receive the Work.

g. The Contractor shall not be responsible for defects in the separate contractors' work of which could not then have been reasonably discovered.

21. CORI

Any persons performing unsupervised work must go through the process of a criminal background check or "CORI." The bidder awarded the Contract must provide to the Owner a signed CORI release form and a copy of the driver's license from each and every person who will be working on a site where children are located. The Owner will determine and provide an adequate identification method for approved personnel and reserves the right to refuse access to a school site to any person without this identification without being charged for any service time.

TOWN OF WINCHESTER
SHORE ROAD BRIDGE REHABILITATION (BRIDGE NO. W-40-029)

FORM OF BID

From: _____
(Name of Bidder)

To: Town of Winchester (the "Awarding Authority")

A. The Undersigned proposes to furnish all labor, equipment, tools and materials required for the construction of the _____ (the "Project"), in accordance with the accompanying Contract Documents and plans and specifications prepared by _____ for the contract price specified below, subject to additions and deductions according to the terms of the specifications.

B. The bid includes addenda numbered _____.

C. The proposed maximum contract price is _____

_____dollars

($ _____). Bidder hereby confirms that it has included bid security in the amount of 5% of the proposed contract price made payable to the Town of Winchester.

D. Alternate One price is _____

_____dollars

($ _____).

E. Bidder accepts all of the terms and conditions of the Advertisement for Bids and Instructions to Bidders.

F. Bidder promises and agrees that this Bid will remain subject to acceptance for sixty (60) business days after the day of Bid Opening.

G. The undersigned agrees that, if selected as contractor, he or she will within ten (10) business days, after presentation thereof by the Awarding Authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and a labor and materials or payment bond, each in the form contained in the bidding documents and of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the amount of the contract price, the premiums for which are to be paid by the contractor and are included in the contract price. The undersigned understands and agrees that the bid deposit accompanying this bid shall become the property of the Awarding Authority if the bidder fails to execute such contract or otherwise fails to comply with the terms of this bid.

H. The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work, and in the specified time described in the bid and contract documents, and that he will comply fully with all laws and regulations applicable to awards made subject to M.G.L. c. 30, § 39M.

I. The undersigned further certifies under the penalties of perjury that:

1. This bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

2. The said undersigned is not presently debarred from doing public construction work in the commonwealth under the provisions of M.G.L. c. 29, § 29F, or any other applicable debarment provision or any rule or regulation.

3. Bidder has complied with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

4. The foregoing bid is based upon the payment to laborers to be employed on the Project of wages in an amount no less than the applicable prevailing wage rates established for the Project by the Massachusetts Department of Labor Standards.

5. The bidder has complied with the Immigration Reform and Control Act of 1986, as amended, and with all regulations adopted thereunder, with respect to all of its employees who will be performing work under this contract and further certifies that said contractor does not knowingly employ any person in violation of United State immigration laws. Bidder further certifies that it will require a similar certification to be executed by any subcontractor who will perform work under this contract and will maintain such certifications for inspection by the Awarding Authority upon its request.

J. By signing and submitting this Form for General Bid, the bidder represents that:

1. Bidder has examined copies of all bidding documents.

2. Bidder has familiarized itself with the nature and extent of the Contract Documents, Work site, locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the work.

3. Bidder has studied carefully all reports and drawings of physical conditions included with these specifications, and accepts that all measurements and technical data included herein is the engineer’s estimates and the bidder has made such investigations of his own as necessary and has based his bid on those investigations.

4. Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, and studies (in addition to or which pertain to the physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work) as bidder considers necessary for the performance or furnishing of the Work at the Contract Price, with in the Contract Time and in accordance with the other terms and conditions of the Contract Documents, and no additional examination, investigations, explorations, tests, reports, or similar information of data are or will be required by bidder for such purposes.

5. Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

6. Bidder has given the Awarding Authority written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof is acceptable to bidder.

7. Bidder acknowledges that the Awarding Authority has the right to reject any or all bids and to waive informalities in the bidding, if it deems such rejection(s) to be in its best interest.

8. Bidder represents that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

K. Post-Bid Submittals: If awarded the Contract, the undersigned agrees to furnish, without limitation, the following information prior to the time established for execution of the Contract:

1. Massachusetts Foreign Corporation Certificate, if applicable.

2. OSHA and/or HAZWOPER training records for each employee assigned to this project.

L. References: List of all projects of a similar size and scope completed within the last five (5) years, including at least two municipalities for which such work has been performed. Attach additional pages if necessary.

Name of Project	Location	Contact Person	Phone/Email
1.			
2.			

3._____

4._____

Date of Bid: _____

_____
(Print Name of Bidder)

By: _____
(Signature)

_____
(Print Name of Person Signing Bid and Title)

_____
(Business Address)

_____
(City, State and Zip Code)

Telephone: ( )_____

Social Security Number or Federal Identification Number: [1]_____

NOTE: If the bidder is a corporation, indicate state of incorporation, give full names of officers; if a partnership, give full names and addresses of all partners; and if an individual, give residential address if different from business address. Use the following spaces, and additional sheets if necessary:

If a Corporation:

Incorporated in what state:_____

President:_____

Treasurer:_____

Secretary:_____

If a foreign corporation (incorporated or organized under laws other than the laws of the Commonwealth of Massachusetts), is the corporation registered with the Secretary of State of Massachusetts?

[1] The bidder's Social Security Number and Federal Identification Number will be furnished to the Massachusetts Department of Revenue to determine whether the bidder has met tax filing or tax payment obligations. This request is made under the authority of M.G.L. c. 62C, § 49A.

Yes _____ No _____

If the bidder is selected for the work referred to above, it is required under M.G.L. c.30 § 39L to furnish to the Awarding Authority a certificate of the Secretary of State stating that the corporation has complied with M.G.L. c. 156D and the date of such compliance.

If a Partnership: (Name all Partners)

Name of Partner:_____

Residence:_____

Name of Partner:_____

Residence:_____

Name of Partner:_____

Residence:_____

If an Individual:

Name:_____

Residence:_____

If an Individual doing business under a firm name:

Name of Firm:_____

Name of Individual:_____

Business Address:_____

Residence:_____

If other form of business organization, please provide attachment describing the form of organization and the name of officers or partners therein.

BID ITEMS

Bid Items

The Bidder agrees to perform all the work, including all incidental labor, materials and equipment for the satisfactory completion of the work in full compliance with the content and intent of the specifications and plans of the work, for the following prices. This is a unit price not to exceed project and the bid prices and quantities will be used as the basis of any change order. Bid prices listed are based on performance of the Work as specified in these Specifications shall include all overhead, profit, handling, taxes and all other related charges.

Item No.	Quantity		Description (unit price in words)	Unit Price	Extended Total
1	1	LS	**Mobilization and Site Preparation**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
2	1	LS	**Erosion and Sediment Control**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
3	1	LS	**Demolition and Site Clearing**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
4	1	LS	**Water Management**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
5	1	LS	**Traffic Management**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
6	1	LS	**Excavation, Handling, and Loading**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	

Item No.	Quantity		Description (unit price in words)	Unit Price	Extended Total
7	1	LS	**Alteration to Bridge Structure No. W-40-029 (2D8)**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
8	70	Tons	**Transportation and Disposal**		
			_____	$_____	$_____
			_____ Dollars Per Ton	Per Ton	
9	1	LS	**Roadway Reconstruction**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
10	1	LS	**Site Restoration and Grading**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
11	1	LS	**Demobilization and Site Cleanup**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
12	1	LS	**Record Drawings**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	
			Total of All Bid Items (Items 1 thru 12) Basis of Award		
			_____		$_____
			_____ Dollars		

Additive Bid Items

The Owner may elect to include additional selective vegetation removal and plantings within the vicinity of Shore Road as part of this project. Bidders are required to fill out the Additive Alternative Bid Items below which will be used as the basis of any change order. In the event actual conditions vary from our estimate, these unit prices will be the basis for any change order. These items will not count towards the Total Base Bid Price.

Item No.	Quantity		Description (unit price in words)	Unit Price	Extended Total
A	1	LS	**Selective Vegetation Removal and Plantings**		
			_____	$_____	$_____
			_____ Dollars Per LS	Per LS	

GENERAL CONTRACT

TOWN OF WINCHESTER
CONTRACT
WITH
XXXXX
FOR THE SHORE ROAD BRIDGE REHABILITATION PROJECT (BRIDGE NO. W-40-029)

This Contract is made and entered into this _____day of _____ by and between _____, a corporation duly organized by law and having a usual place of business at _____ , the ("Contractor"), and the Town of Winchester, Massachusetts (the "Owner").

WHEREAS, the Owner issued an Advertisement for Bids for the **Shore Road Bridge Rehabilitation Project** (the "Project"), dated _____; and

WHEREAS, the Contractor represents that it is duly qualified in this field, and has bid and offered to do all the work as required by the Owner for the Project; and

WHEREAS, the Owner has accepted the Contractor's bid, subject to the conditions of this Contract.

NOW, THEREFORE, it is agreed by and between the Owner and the Contractor, as follows:

1. GENERAL

1.1 CONTRACT DOCUMENTS –The Contract comprises the following documents, including all additions, deletions and modifications incorporated therein before the execution of the Contract: Legal and Procedural Documents, Advertisements for Bids, Instructions to Bidders, all Bidding Documents, Contract Forms, this Contract, Specifications, Drawings, General and Sub-Bid Forms, Certificates of Bidders, Labor and Materials Payment Bond and Performance Bond, Prevailing Wage Rates, all addenda issued prior to execution of the contract, other documents listed and referenced throughout, and any Modifications validly issued after execution of the Contract.

1.2 MODIFICATION – A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work. No oral order, objection, claim or notice by any party to the others shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever other than by a definitely agreed waiver or modification thereof in writing.

1.3 THE CONTRACT –The Contract Documents represent the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract Documents may be amended or modified only by a Modification. Nothing contained in the Contract Documents shall be construed to create any contractual relationship (1) between the Engineer and the Contractor, (2) between the Owner or

the Engineer and a Subcontractor or (3) between any persons or entities other than the Owner and the Contractor.

1.4 THE WORK – The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

1.5 THE PROJECT – The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

1.6 THE DRAWINGS – The Drawings are the graphic and pictorial portions of the Contract Documents, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

1.7 THE SPECIFICATIONS – The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards, and workmanship for the Work, and performance of related services.

2. CONTRACT SUM

2.1 Payments under this Contract shall not exceed _____Dollars (the "Contract Sum"). The Contractor's Schedule of Values will be utilized for the Contractor's Payment Requests but shall only be so utilized after it has been approved in writing by the Engineer, and the Owner.

2.2 The Contract Sum is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

3. EXECUTION, CORRELATION AND INTENT

3.1 The Contractor shall perform all the Work required by this Contract in conformity with the plans and specifications contained and referenced herein. No willful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the Owner.

3.2 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents. The Contractor shall have a continuing duty to read, examine, review, compare and contrast each of the Contract Documents, shop drawings, and other submittals throughout the Work and shall give written notice to the Owner of any conflict, ambiguity, error or omission which the Contractor may find with respect to these documents before proceeding with the affected portion of the Work. The express or implied approval by the Owner or the Engineer of any shop drawings or other submittals shall not relieve the Contractor of the continuing duties imposed hereby, nor shall any such approval be evidence of the Contractor's compliance with this Contract. The Town has requested the Engineer to only prepare documents for the Project, including the plans and specifications for the Project, which are accurate, adequate, consistent, coordinated and sufficient for construction.

However, the Town makes no representation or warranty to the Contractor concerning such documents.

3.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contractor shall provide and pay for, but not limited to, for the completion of the Work, all materials, labor, tools, construction equipment and machinery, water, heat, utilities, light, power, transportation, superintendence, temporary construction, fire protection, ventilation, enclosures of every nature, safety equipment, snow and ice removal and all other services and facilities of every nature whatsoever necessary to execute, complete and deliver the Work in accordance with the Contract Documents. The permanent heating and ventilation systems may, with the prior written approval of the Owner, be used for these purposes when available unless otherwise prohibited in the Contract Documents.

3.4 Any Work performed after regular working hours, on Saturdays, Sundays or legal holidays, shall be performed without additional expense to the Owner.

3.5 The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall include all Work incidental or reasonably inferable from the Contract Documents as being necessary to produce the intended results under the Contract Documents. All Work mentioned or indicated in the Contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others.

3.6 Anything shown on the Plans and not mentioned in the Specifications, or mentioned in the Specifications and not shown on the Plans, shall have the same effect as if shown or mentioned respectively on both.

3.7 Neither party shall take advantage of any obvious error or omission in the Contract Documents. Any apparent discrepancies shall be submitted to the Owner for determination. The decision of the Owner thereupon shall be conclusive.

3.8 The fact that specific mention of a fixture, or of any part of the work is omitted in the Specifications, whether intentionally or otherwise, when the same is clearly shown or indicated on the Plans, or is usually and customarily required to complete fully such work as is specified herein, shall not entitle the Contractor to consider action in the manner of any claim for extra compensation, but the said fixtures or work, or both, must be installed or done the same as if called for by both the Plans and Specifications.

3.9 In case of any inconsistency or conflict among the Contract Documents or within any of the Contract Documents, the Contract Documents shall be interpreted on the basis of the following priorities, with the later date of documents in each category to take precedence:

1. Modifications
2. Change Orders
3. Construction Change Directives
4. Engineer’s supplemental instructions
5. This Contract
6. Addenda

7. Advertisement for Bids and Instructions to Bidders
8. Drawings and Specifications

Further, in case of any conflict, discrepancy, or inconsistency among any of the following Contract Documents, the following shall control:

1. as between figures given on plans and scaled measurements the figures shall govern;
2. as between full size plans and reduced size plans, the full size plans govern;
3. as between plans and specifications, the requirements of the specifications shall govern;
4. as between this document and specifications, this document shall govern.

3.10 If any provision contained in this Contract or the application thereof to any person or circumstance shall, for any reason or to any extent, be held to be invalid, illegal or unenforceable in any respect, all other provisions hereof, as well as the application of the affected provision to persons or circumstances other than those as to which it is held invalid, illegal or unenforceable, shall not be affected thereby, and shall be construed and enforced to the fullest extent permitted by law as if such invalid, illegal or unenforceable provision had never been included herein; it being intended that each of the provisions of this Contract shall be severable.

3.11 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade, except the Contractor shall not divide the work of any filed sub-bid trade, bids for which have been received separately by the Owner in accordance with M.G.L. c. 149. The Contractor and all Subcontractors shall refer to all of the Drawings, and to all of the Sections of the Specifications, and shall perform all Work reasonably inferable as being necessary to produce the indicated results.

3.12 Any discrepancies found between the Drawings and Specifications and site conditions or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Owner, who shall promptly correct such error or omission in writing. Any work done by the Contractor after discovery of such discrepancies, errors or omissions without notifying the Owner shall be done at the Contractor's risk.

3.13 Further instruction may be issued by the Owner during the progress of the work by means of Drawings or oral or written instructions to make more clear or specific the Drawings and Specifications or as may be necessary to explain or illustrate changes in the work to be done. The Contractor shall carry out the work in accordance with the additional Drawings and Instructions.

3.14 Unless otherwise stated in the Contract Documents, words and abbreviations that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

3.15 Where public or private standard specifications, codes, regulations, ordinance and similar publications of governmental agencies, technical societies, manufacturer's associations and regulatory groups or bureaus are referred to in these specifications, the applicable portion thereof shall be of the same effect as if fully printed herein, and the work done in full accordance therewith.

The edition current as of the date of issue of this specification shall be used except where publication date is specifically stated.

3.16 Where no quality or standards for materials or workmanship are established, such Work is to be of good quality for the intended use and consistent with the quality of the surrounding Work and of the Construction of the Project.

3.17 Any Test boring or soil test information included in the Contract Documents or made available to the Contractor are not represented by the Owner nor the Engineer as an accurate or approximate indication of subsurface conditions, and no claim for extra costs or extensions of time resulting from reliance by the Contractor on such information shall be allowed except to the extent required by law.

3.18 All of the Contract Documents prepared and copies provided by the Owner and the Engineer are the property of the Owner. The Contractor, Subcontractor, Sub-subcontractor, or material or equipment supplier shall not use the Contract Documents for any other projects without written authorization of the Owner.

4. OWNER

4.1 The Owner, sometimes referred to as the Awarding Authority, the Town of Winchester, or the Town, is the Town of Winchester, Massachusetts, and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. The Owner's representative shall, for the purposes of this Contract be the Owner's Town Engineer. The term "Owner" means the Owner or the Owner's authorized representative.

4.2 The Owner and agents of the Owner shall have access to and be permitted to inspect all Work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records whenever these are in progress of preparation. The Contractor shall provide proper and necessary facilities for such access and inspection. For the purpose of observing work that affects their respective properties, inspectors for public agencies and the utility companies shall be permitted access to the Work, but all official orders and directives to the Contractor will be issued only by the Owner.

4.3 In the event that the Contractor covers, conceals or obscures its work in violation of this Contract or in violation of a directive from the Owner or the Engineer, such work shall be uncovered and displayed for the Owner's or Engineer's inspection upon request, and shall be reworked at no cost in time or money to the Owner.

4.4 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings, Project Manuals, and Specifications as are reasonably necessary for execution of the Work. Information or services required of the Owner hereunder shall be furnished by the Owner with reasonable promptness after receipt from the Contractor of a written request for such information or services.

4.5 The Owner shall not be responsible for furnishing surveys or other information as to the physical characteristics of, legal limitations of or utility locations for the project site. Contractor shall confirm the location of each utility, shall excavate and dispose of each on-site utility and shall cap each off-site utility as required by the Work, any applicable law, and as may be included in the Specifications.

4.6 Owner does not warrant nor assume responsibility whatsoever the accuracy or sufficiency of borings made, or logs of test borings, or other investigations, or the interpretations therefrom, and no warranty or guaranty, express or implied, that the conditions indicated by such investigation, borings, logs, or information are representative of existing conditions throughout the project site, or that unforeseen developments may not occur. At the Owner's request, the Contractor shall make available the results of any site investigation, test borings, analysis, studies or other tests conducted by or in possession of the contractor or any of the Contractors agents.

4.7 The Contractor represents that it is familiar with the Project site and has received all information required concerning the conditions of the Project Site. The Contractor represents that it has inspected the locations of the subsurface conditions. The Contractor shall undertake further investigations and studies as may be necessary to determine surface and subsurface conditions. Based on these inspections and understandings, agreements and acknowledgements, the Contractor agrees that (1) the Contract Sum is just and reasonable compensation for all of the Work, including all foreseeable risks, hazards, difficulties in connection therewith, (2) that the deadlines for completion of work and the Work under the Contract Documents are feasible to achieve, and (3) that the Work shall not result in any lateral or vertical movement of any structure. The Contactor shall, except to the extent required by law, have no claims for surface or subsurface conditions encountered. The Contractor shall exercise care in executing subsurface Work in proximity of known subsurface utilities, improvements, and easements.

4.8 The Owner shall be liable to the Contractor only to the extent of its interest in the Project, and no officer, official, employee, board member, consultant, volunteer participant or agent of the Owner shall ever be personally or individually liable with respect to this Contract or the Work. Each Subcontract shall include the foregoing limitation, which shall be effective if the Owner ever succeeds to the Contractor's rights and obligations under a Subcontract.

5. OWNER'S RIGHT TO STOP WORK AND/OR CARRY OUT THE WORK

5.1 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents or fails to carry out the Work in accordance with the Contract Documents, the Owner by immediate written order signed personally or by its authorized agent, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

5.2 Alternatively, if the Contractor fails, defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Engineer at the Owner's direction to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies, perform the Work using its own forces or hire one or more contractors to correct such deficiencies. In such case, an appropriate Change Order shall be issued deducting from payments

then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Owner's and the Engineer's additional services and expenses made necessary by such default, neglect, or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

5.3 The Owner shall have the right to suspend the work or any portion thereof at any time for a period less than fifteen (15) days without charge or cost by the Contractor for time delay provided that the Owner gives the Contractor written notice of suspension of work. The Contractor shall resume the work upon written notice from the Owner and for a period less than fifteen (15) days after the date set forth in the notice of suspension.

5.4 In the event of temporary suspension of work or during inclement weather or whenever the Owner shall direct the Contractor and will cause subcontractors to protect carefully all the work and materials against damage or injury from the weather. If, in the opinion of the Owner any work or materials shall have been damaged or injured from the weather, by reason of failure on the part of the Contractor or any of the Contractors subcontractors so to protect the work, such materials shall be removed and replaced at the expense of the Contractor.

5.5 The Owner shall have the authority to direct the Contractor not to correct work that has been damaged, or that was not performed in accordance with the Contract Documents. An equitable deduction from the Contract Amount shall be made to compensate the Owner for such uncorrected work. Such deduction shall be made whether or not final payment has been made under this Contract.

5.6 Owner's rights and remedies under this Article 5 shall be in addition to, and no in lieu of, any other rights and remedies it may have under this Contract or any applicable law.

6. SEPARATE CONTRACTS

6.1 The Owner reserves the right to perform construction or operations related to the Project under separate contracts, or with the Owner's own forces in connection with other portions of the Project or other construction or operations on the site under separate Contract.

6.2 The Contractor shall cooperate fully with separate contractors with regard to storage of materials and execution of separate contract work, and shall connect and coordinate the separate contractor's construction and operations with the Contractor's as required by the Contract Documents.

6.3 It shall be the Contractor's responsibility to inspect all separate contractor work affecting the Work and to report to the Owner any irregularities or defects that would not permit completion of the Work in a satisfactory manner or in the time permitted in the Contract Documents.

6.4 The Contractor shall immediately report to the Owner or Engineer any discrepancies or defects in a separate contractor's work that would be unsuitable for proper execution of the Work. The Contractor's failure to notify the Owner of such irregularities shall indicate the separate contractor's work has been satisfactorily completed to receive the Work.

6.5 It shall be the responsibility of the Contractor to measure the completed work in place and report to the Owner immediately any difference between completed work by others and the Drawings.

6.6 The Contractor shall not be responsible for defects in the separate contractors work which could not then have been reasonably discovered by the Contractor.

6.7 Wherever work being done by the Owner's forces or by other contractors is contiguous to Work covered by the Contract, the respective rights of various interests involved shall be established by the Owner, to secure the completion of the various portions of the work in general harmony.

7. ENGINEER – ADMINISTRATION OF THE CONTRACT

7.1 The Engineer is the person or entity licensed to practice or engineering, who is responsible for performing the duties assigned to the Engineer by the Contract Documents.

7.2 The Owner, at the Owner's sole discretion, shall assume the responsibilities and role of the Engineer when an Engineer has been deemed unnecessary by the Owner for completion of the Work.

7.3 The Engineer's responsibilities and authority shall not take precedence over the Owner's rights and the Contractors obligations to fulfill the Contract Document requirements as set forth in the Contract Documents.

7.4 Except as otherwise provided in the Contract Documents or when direct communications have been specifically authorized by the Owner, the Owner and Contractor shall communicate through the Engineer. Communications by and with the Engineer's consultants shall be through the Engineer. Communications by and with subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contract contractors shall be through the Owner.

7.5 The Engineer shall provide administration of the Contract as described in the Contract Documents, and will be the Owner's representative during construction, until final payment is due and at the Owner's request, from time to time during the guaranty period. The Engineer will advise and consult with the Owner.

7.6 The Engineer will regularly visit the site, conduct job meetings, and keep the Owner informed of the progress and quality of the Work, and will endeavor to inform the Owner of defects and deficiencies in the Work. The Engineer's minutes of meetings shall be the official minutes kept on the Project. However, the Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Engineer will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as otherwise expressly provided herein.

7.7 Based on the Engineer's observations and evaluations of the Contractor's Applications for Payment, the Engineer will review and certify the amounts due the Contractor and will submit to the Owner for its review, consideration, and, if approval of Certificates for Payment in such amounts as the Engineer determines appropriate in accordance with the Contract Documents.

7.8 The Engineer shall reject Work that does not conform to the Contract Documents. Whenever the Engineer considers it necessary or advisable to achieve the intent of the Contract Documents, the Engineer will have authority to require additional inspection or testing of the Work.

7.9 The Engineer will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking such submittals for conformance with the information given and the design concept expressed in the Contract Documents. The Engineer's review shall be in accordance with the provisions and the procedures described in the Contract Documents and shall not relieve the Contractor from compliance with the requirements of the Contract Documents.

7.10 The Engineer will prepare Change Orders and Construction Change Directives for the Owner's approval and execution. The Engineer may authorize Minor Changes in the Work.

7.11 The Engineer will conduct inspections to determine, in consultation with the Owner, the date or dates of Substantial Completion and the date of Final Completion, will receive and forward to the Owner for the Owner's review and records written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

7.12 The Owner may provide one or more project representatives to assist in carrying out the Engineer's responsibilities at the site.

7.13 The Engineer will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the Owner or Contractor. The Engineer's written response to such requests will be made within time limits that will not affect the progress of the Work, but, in any event, within a thirty (30) day limit.

7.14 The Engineer's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents, subject to approval by the Owner.

7.15 The Owner may utilize the services of a Clerk of the Works for the Project. Except as authorized by the Owner, the Clerk of the Works shall have no authority for approvals or changes to the Work. The Owner's Clerk of the Works shall be on site at all times during regular working hours as defined in the Contract Documents. If the Contractor determines the need for additional hours outside of the regular working hours and receives authorization and, any required permits to perform work outside of the regular working hours, the Contractor shall be responsible for the additional costs associated with the Clerk's required services to be on site at all times during those hours not regular hours as identified in the Contract Documents. The reimbursement shall be based on the Clerk of the Works' hourly wage and benefits and shall be paid by means of a credit Change Order executed at the time of Final Completion.

8. CONTRACTOR

8.1 The Contractor is the person or entity identified as such in the Contract and is referred to throughout the Contract Documents as if singular in number. The Contractor shall designate in writing a representative who shall have the express authority to bind the Contractor with respect to all maters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

8.2 Prior to starting Work and at frequent intervals during the progress, the Contractor shall carefully study and compare the Contract Documents with each other and with the information furnished by the Owner or Engineer and shall at once report to the Owner and Engineer any error, inconsistency or omission the Contractor may discover. If the Contractor proceeds with the Work without such notice to the Engineer, having discovered such errors, inconsistencies or omissions, or if by reasonable study of the Contract Documents the Contractor could have discovered such, the Contractor shall bear all costs arising therefrom.

8.3 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be immediately reported to the Owner and the Engineer.

8.4 The Contractor shall perform the Work in accordance with the Contract Documents.

8.5 Any claim by the Contractor or subcontractors that, in submitting their bid proposals, they did not include all items as shown in the Contract Documents, will be given no consideration for an adjustment. If any item is specified in a Section which would not normally furnish these items it shall be the responsibility of the Contractor to coordinate the situation with the Subcontractor, and if the item under consideration is not to be provided by the Subcontractor it shall be the responsibility of the Contractor to provide the work in question, without any additional cost to the Owner.

8.6 The Contractor shall begin and shall prosecute the work regularly, and without interruption after Notice to Proceed has been given by the Owner (unless otherwise directed in writing by the Owner) with such force as to secure the completion of the work, in an acceptable manner, within the time stated in the Proposal.

8.7 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordination of all portions of the Work. Where Contract Documents refer to particular construction means, methods, techniques, sequences or procedures or indicate or imply that such are to be used in the Work, such mention is intended only to indicate that the operations of the Contractor shall be such as to produce at least the quality of work implied by the operations described, but the actual determination of whether or not the described operations may be safely and suitably employed on the Work shall be the responsibility of the Contractor, who shall notify the Owner and Engineer in writing of the actual means, methods, techniques, sequences or procedures which will be employed on the Work, if these differ from those specified in the Contract Documents. All loss, damage, or liability, or cost of correcting

defective work arising from the employment of any construction means, methods, techniques, sequences or procedures shall be borne by the Contractor, notwithstanding that such construction means, methods, techniques, sequences or procedures are referred to, indicated or employed by the Contract Documents, unless the Contactor has given timely notice to the Owner and Engineer in writing that such means, methods, techniques, sequences or procedures are not safe or suitable, and the Owner has then instructed the Contractor in writing to proceed with such means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor.

8.8 The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, agents, Subcontractors and suppliers and the employees and agents of any of the foregoing, and any other entities or persons performing or supplying the Work.

8.9 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Engineer in the Engineers administration of the Contract, the activities or duties of an Owner's Project Manager (if any), or by tests, inspections or approvals required or performed by persons other than the Contractor.

8.10 The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent work.

8.11 The Contractor shall exercise due care when working around all property bounds. Should any damage to a bound result from the actions of the Contractor, it shall be replaced and/or realigned by the Contractor as directed by the Owner. No further compensation will be due to the Contractor for the materials and labor required to re-establish the bound in its proper orientation.

8.12 The Contractor shall give all notices and comply with all Federal, State and local laws, ordinances and regulations in any manner affecting the conduct of the Work, and all such orders and decrees as exist, or may be enacted by courts, agencies, bodies or tribunals having any jurisdiction or authority over the Work.

8.13 The Contractor shall be responsible for the conduct and discipline of employees and/or any subcontractor or persons employed by subcontractors. All workers must have sufficient knowledge, skill and experience to perform properly the work assigned to them. Any foreperson or worker employed by the Contractor or subcontractor who, in the opinion of the Owner, does not perform the work in a skillful manner or appears to be incompetent or to act in a disorderly or intemperate manner shall, at the written request of the Owner and to the extent permitted by law, be discharged immediately and shall not be employed again in any portion of the Work without the approval of the Owner.

9. SUPERINTENDENCE

9.1 The Contractor shall employ a competent Project Manager and Superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work and until the date of Substantial Completion and for such additional time thereafter as the Owner may determine to be necessary for the full completion of the Work. The Superintendent shall be responsible for coordinating all the Work of the Contractor and the Subcontractors.

9.2 The Contractor shall remove the project manager or superintendent or assistants if requested to do so in writing by the Owner, and shall promptly replace such person with a competent person reasonably acceptable to the Owner. The Superintendent shall represent the Contractor, and communications given to the Superintendent shall be as binding as if given to the Contractor.

9.3 The Superintendent shall be licensed consistent with the Massachusetts Building Code. The Superintendent's resume shall be submitted to the Owner prior to commencement of construction and must demonstrate to the Owner's reasonable satisfaction that the Superintendent has performed similar duties on previous construction projects similar to the Project.

9.4 The Contractor shall retain a competent registered professional engineer or registered land surveyor, acceptable to the Owner, who shall establish the exterior lines and required elevations of all buildings and structures to be erected on the site and shall establish sufficient lines and grades for the construction of associated work such as, but not limited to, roads, utilities and site grading. Said engineer or land surveyor shall certify as to the actual location of the constructed facilities in relation to property lines, building lines, easements, and other restrictive boundaries.

9.5 The Contractor shall conduct the engineering required for establishing grades, lines, levels, dimensions, layouts, and reference points for the trades; shall be responsible for maintaining bench marks and other survey marks; and shall replace any bench marks or survey marks which have been disturbed or destroyed.

9.6 The Contactor shall coordinate and supervise the Work performed by all Subcontractors to the end that the Work is carried out without conflict between trades and so that no trade causes delay to the general progress of the Work. The Contractor and all subcontractors shall at all times afford each trade, any separate contractor, or the Owner, every reasonable opportunity for the installation of Work and the Storage of materials.

9.7 The Contractor shall arrange for and attend job meetings with the Owner and the Engineer and such other persons as the Owner and the Engineer may require to be present. The Contractor shall be represented by a principal, the project manager, the superintendent, or other representative of the Contractor acceptable to the Owner. An authorized representative of any Subcontractor shall attend such meetings if the representative’s presence is requested by the Owner or the Engineer.

10. SUBCONTRACTORS

10.1 A subcontractor, also referred to in the Contract Documents as a filed-subcontractor or sub-subcontractor, is a person or entity that has a direct contract with the Contractor or another Subcontractor to perform a portion of the Work. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a separate contractor or subcontractors of a separate contractor.

10.2 By written agreement, the Contractor shall require each subcontractor to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by those Contract Documents, assumes

toward the Owner and the Engineer. The Contractor shall make available to each Subcontractor, prior to the execution of a subcontract agreement, copies of the Contract Documents to which the subcontractor will be bound, and shall further identify to the Subcontractor any terms and conditions of the subcontractor agreement which may differ or be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors. The Owner shall have the right to review the Contractor's standard form of subcontract and the content of all subcontracts and sub-subcontracts.

10.3 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that the assignment is effective only after termination of the Contract by the Owner for cause and only for those subcontract agreements which the Owner, in its sole discretion, accepts by notifying the Subcontractor and Contractor in writing. Such assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract. In the event of such assignment to and assumption by the Owner, the Subcontractor shall have no claim against the Owner or such third party for Work performed by such Subcontractor or other matters arising prior to termination of the Contract, and the Owner or such third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after such assumption. This Section 9.3 shall serve as the instrument of assignment at such time as the assignment provided for above becomes effective. The Contractor agrees to include in each subcontract agreement the assent of each Subcontractor to such assignment of its subcontract agreement to the Owner, and to execute whatever instruments the Owner may request to confirm the assignment described in this Section 9.3.

10.4 The Contractor, as soon as practicable after award of the Contract, shall provide in writing to the Owner and Engineer the names of persons or entities, and business address (including those who are to furnish materials or equipment fabricated by a special design) proposed for each principal portion of the Work, or as specifically requested by the Owner or Engineer. The Engineer shall reply to the Contractor in writing stating whether or not the Owner has reasonable objection to any such proposed person or entity, the Owner shall not object to previously approved filed sub-bidders. Neither the Contractor nor the Subcontractor shall contract with a person or entity to which the Owner has made reasonable objection.

10.5 The applicable provisions of Massachusetts law shall apply to all subcontractors filed sub-contractors and sub-subcontractors and said law shall take precedence over any conflicting statements in the Contract Documents.

11. NOTIFICATIONS

11.1 Written notice shall be considered as served when delivered in person or sent by certified mail or courier service providing proof of delivery to the individual, firm or corporation or the last business address known to that person who serves the Notice. It shall be the duty of each party to advise the other parties to the Contract as to any change in business address upon completion of the Contract.

12. CONTRACT SECURITY

12.1 The Contractor shall furnish and maintain in force a labor and materials payment bond and a performance bond in an amount not less than one hundred percent (100%) of the Contract Sum as security for the performance of the Contract and payment of all persons performing labor on the project under this Contract and furnishing materials in connection with this Contract.

12.2 The sureties of all bonds shall be such surety company or companies as are approved by the Owner, and as are authorized to transact business in the Commonwealth of Massachusetts. An attorney-in-fact who executes the required bonds for the surety shall affix a certified and current copy of the power of attorney.

12.3 If at any time the Owner, for justifiable cause, shall be or become dissatisfied with any surety or sureties, the Contractor shall within five (5) days after notice from the Owner to do so, substitute an acceptable bond (or bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished such an acceptable bond to the Owner.

12.4 The Contractor may list in its bid that any or all filed Subcontractors provide the Contractor with payment and performance bonds for the full 100% amount of the Subcontract. The costs for said bonds shall be the responsibility of the Contractor. Requirements relating to the Contract Security and Payment and Performance Bonds throughout the Contract Documents shall be applicable to the bonds and surety provided by the Subcontractors, for which verification, payment, and responsibility shall be with the Contractor.

12.5 In the event the Contractor lists in its bid that filed Subcontractors provide bonds, and subsequently waives the requirement, the Contractor shall provide the Owner with a certification that they understand if the filed subcontractor defaults or is terminated, the Contractor accepts full responsibility and costs related to said default or termination with a credit change order in an amount equal to the bond premium it would have paid had it required the filed Subcontractor to provide such bonds.

13. INDEMNIFICATION

13.1 The Contractor shall indemnify, defend with counsel acceptable to the Owner, and save harmless the Owner, the Engineer, and their officers, agents, servants and employees from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, on account of bodily injury, sickness, disease or death sustained by any person or persons or injury or damage to or destruction of any property, directly or indirectly arising out of, relating to or in connection with the Work or any breach or failure of the Contractor to comply with the terms and conditions of the Contract Documents, whether or not due or claimed to be due in whole or in part to the active, passive or concurrent negligence or fault of the Contractor, the offices, agents, servants or employees and/or any other person or persons, and whether or not such claims, demands, suits or proceedings are just, unjust, groundless, false or fraudulent; and the Contractor shall and does hereby assume and agrees to pay for the defense of all such claims, demands, suits and proceedings. Such obligation

shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person.

13.2 If a separate contractor sues or initiates an arbitration proceeding against the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor who shall defend such proceedings at the Contractor's expense, and if any judgment or award against the Owner arises therefrom the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court or arbitration costs which the Owner has incurred.

13.3 This Article shall survive the expiration or termination of this Contract.

14. INSURANCE

14.1 The Contractor shall not commence work under this Contract until the Contractor has obtained the following insurance coverage and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on the subcontract until all similar insurance required of the subcontractor has been so obtained and approved. Approval of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder. Certificates from the Contractor's Insurance carriers stating the coverage's provided, the limits of liability and expiration dates shall be filed with the Owner before operations are started.

1. Workmen's Compensation Insurance: Procure and maintain during the life of this Contract, Workmen's Compensation and Employer's Liability Insurance as required by State law for all employees to be engaged in work at the site of the project, and, in case of any such work sublet, Contractor shall require subcontractors similarly to provide Workmen's Compensation and Employer's Liability Insurance for all the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Insurance. The limit of liability for Employer's Liability Insurance shall be not less than $500,000.00. In case any class of employees engaged in hazardous work on the project under this Contract is not protected under the Workmen's Compensation Statute, the Contractor shall provide and shall cause each Subcontractor to provide Employer's Liability Insurance with a limit of at least $1,000,000 for each accident for the protection of such of employees as are not otherwise protected.

2. Contractor's General Liability and Property Damage Insurance: Procure and maintain during the life of this Contract, comprehensive Contractor's General Liability Insurance, with the Owner additional named insured, covering bodily injury, including accidental death, with limits of $1,000,000 per person, $1,000,000 per occurrence and property damage insurance with limits of $1,000,000 per occurrence, including products and completed operations, explosion, collapse, (X/C/U) and Broad Form Property Damage Coverage. Provide a separate policy for completed operations for a period of two (2) years from date of Final Completion of the Project. Any policy issued shall include permission for partial or total occupancy by Owner within the scope of this Contract. Coverage shall also include an Owner's and Contractor's protective liability favoring the Owner and an

umbrella of excess liability in the amount of $2,000,000 (two million dollars) minimum.

3. Contractor's Automobile Liability Insurance: Procure and maintain during the life of this Contract Comprehensive Automobile Liability Insurance, including all owned, non-owned, and hired automobiles, with the Owner as additional named insured, covering bodily injury, including accidental death, with limits of $1,000,000 per person, $1,000,000 per occurrence and property damage with limits of $1,000,000 per occurrence.

4. All-risk Insurance: Procure and maintain during the life of this Contract All-Risk Builder's Risk Insurance on a 100% completed value basis, with the Owner named as an insured as the Owners interests may appear. In the event of paid claims, the Contractor shall bear the costs of any amounts deductible under the policy.

5. Property Insurance: Procure and maintain during the life of this Contract Property Insurance in the amount of the Contract Sum, and subsequent modifications to include all components, portions, and full coverage of the Work including Boiler and Machinery Insurance at the site on a replacement cost basis. Property insurance shall include portions of the Work stored off site or in transit. The Insurance shall include interests of the Owner, the Contractor, and Subcontractors and sub-subcontractors in the Work.

14.2 All such insurance shall be provided by a Best 'A' rated company lawfully authorized to do business in the Commonwealth of Massachusetts. The Owner shall be named as an additional insured under all policies. In the event of paid claims under all policies the Contractor shall bear the cost of all and any deductibles. The Insurance Policies shall not conflict with the Contract Documents and shall allow for the Owner's partial or total occupancy by Owner within the scope of the Contract Documents.

14.3 Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of the Contract and shall operate as an immediate termination thereof.

14.4 All policies shall be so written that the Owner will be notified in writing of cancellation or restrictive amendment at least thirty (30) days prior to the effective date of such cancellation or material amendment. Renewal certificates must be furnished by the Contractor prior to the expiration date of any of the initial insurances.

14.5 If a loss occurs under any of the insurance policies required by the Contract Documents, insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear. The Contractor shall pay Subcontractors their shares of insurance proceeds received by the Contractor, and by agreements, written where legally required for validity, and shall require Subcontractors to make payments to their sub-subcontractors.

15. PERMITS AND FEES

15.1 The Contractor shall secure any and all permits, licenses, and fees required for the proper execution of the Work. The Contractor shall coordinate all efforts required to obtain said permits.

15.2 If the Contractor observes that portions of the Contract Documents are at variance with any permit conditions, the Contractor shall promptly notify the Engineer and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

15.3 If the Contractor performs Work knowing it to be contrary to any permit or license condition, or any laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Engineer and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

16. TAXES

16.1 The Contractor shall not pay, and the Owner shall not reimburse or pay the Contractor for, any sales taxes on building supplies or materials for which an exemption is provided pursuant to M.G.L. c. 64H, § 6(f).

17. ASSIGNMENT

17.1 Neither the Contractor nor the Owner shall sublet, sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or the right, title or interest therein, or the obligations hereunder, without written consent of both the Contractor and the Owner. If the Contractor attempts to make such assignment, the Contractor shall nevertheless remain legally responsible for all obligations under the Contract.

18. TIME

18.1 The Contractor agrees that time is of the essence of each and every portion of the Contract Documents and wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any Work, the new time limit fixed by such extension shall be of the essence of this Contract.

18.2 The date of commencement of the Contract shall be **June 15, 2025** unless otherwise fixed in a Notice to Proceed from the Owner.

18.3 The Contractor shall notify the Owner at least five days prior to starting the Work. The Contractor shall coordinate the Work and proceed with adequate forces and shall be required to obtain Completion within the time set in the Contract Documents.

18.4 Prior to commencement of the Work, the Contractor shall meet in conference with representatives of the Owner and Engineer to discuss and develop mutual understandings relative to administration of the quality assurance program, safety program, labor provisions, the schedule of Work, and other Contract procedures.

18.5 The date of Substantial Completion is the date certified by the Engineer and approved by the Owner. The Contractor shall achieve Substantial Completion of the entire Work no later than 51 days from the commencement date of the Contract.

The Contractor shall achieve **Final Completion of the entire Work no later than November 30, 2025,** and be partially completed, open to traffic and pedestrians by **September 1, 2025**

18.6

18.7 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Engineer, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by other causes that the Engineer determines may justify delay, then, by Change Order, the Contract Time may be extended for such reasonable time as the Owner determines, and the Contract Sum shall be adjusted by the amount of the actual, direct, increased costs incurred by the Contractor during such extended time; provided, however, that the Contractor shall not be entitled to an extension of time due to an act or neglect of the Owner or the Engineer unless the Contractor has first provided timely written notice to the Owner and the Engineer that the act or neglect of the Owner or Engineer, as applicable, is adversely affecting the commencement or progress of the Work.

18.8 Change Order Requests for Extension of Time based on seasonal variations in the weather shall be denied. Conditions of the weather are solely at the risk of the Contractor.

18.9 Failure to notify the Engineer in writing of any delay shall preclude the Contractor from subsequently claiming any damages due to said delay.

18.10 Notwithstanding the above, the following provisions of G.L. c. 30, § 39O shall govern, where applicable:

Chapter 30: Section 39O. Contracts for construction and materials; suspension, delay or interruption due to order of awarding authority; adjustment in contract price; written claim

Section 39O. Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety and, in the event a suspension, delay, interruption or failure to act of the awarding authority increases the cost of performance to any subcontractor, that subcontractor shall have the same rights against the general contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the general contractor against the awarding authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the general contractor or the subcontractor may have against each other.

(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided however, that if there is a suspension,

delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim."

18.11 It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the Contract Documents of the Work are Essential Conditions of this Contract; and it is further mutually understood and agreed that the Work shall be commenced on a date to be specified in the Contract Documents or a Notice to Proceed.

18.12 The Contractor agrees that said Work shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the Work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

18.13 If the said Contractor shall neglect, fail or refuse to complete the Work within the time herein specified, or any proper extensions thereof granted by the Owner, that the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the Owner the sum of $500, not as a penalty but as liquidated damages for such breach of contract as herein set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents for completing the work.

18.14 The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain. The Contractor and/or the Contractor's surety shall be liable for and pay the Owner the sums stipulated as liquidated damages. These liquidated damages are not intended to limit the liability of the Contractor for actual damages that may exceed the amount of these liquidated damages.

19. CONTRACTOR'S CONSTRUCTION SCHEDULES

19.1 At least fifteen (15) days prior to commencement of the Work the Contractor shall submit to the Engineer a construction schedule in bar graph form, satisfactory to the Engineer, showing in detail the proposed progress for the construction of the various parts of the Work, the proposed times for receiving materials required, and the interrelationship between the various construction operations and the percentage of completion and the dollar value of the completed work on the first day of each month for each section of the specifications and the entire Work. Submission of said schedule shall be a condition precedent to approval of the Contractor's first application for payment.

19.2 At the end of each month, or more often if required, the Contractor shall furnish the Engineer an updated schedule showing actual progress of the various parts of the Work in comparison with the originally proposed progress and payment schedules. If the Engineer raises any objections to progress or payment schedules submitted by the Contractor, the Contractor shall immediately address and resolve such objections to the reasonable satisfaction of the Engineer.

19.3 Whenever progress of the Work falls behind the planned schedule of construction as shown on the project schedule, the Contractor shall promptly notify the Owner and the Engineer and promptly advise the Owner of action being taken to return the Work to the planned schedule or to revise the schedule as necessary to maintain the Substantial Completion date, and such action shall be indicated on the project schedule, which shall then be promptly re-submitted by the Contractor to the Engineer and the Owner for review and approval.

19.4 If the Owner determines that the progress of the Work has been materially delayed, or that the project schedule is in jeopardy of not being met, the Owner shall have the right to require the Contractor to take whatever steps are necessary to recover all or a portion of such delay. If and to the extent such delay is caused by any act or omission of the Owner or the Engineer or is otherwise beyond the control of the Contractor, the costs of such recovery shall be borne by the Owner; otherwise the costs associated with such recovery shall be borne by the Contractor and there shall be no increase in the Contract Sum on account of such recovery activities. The Contractor shall, within three (3) days after the Owner's request to take such action, notify the Owner and the Engineer in writing, and commence implementing the steps the Contractor proposes to take to effect such recovery, and provide the Owner, in a form acceptable to the Owner, a detailed recovery schedule setting forth the actions to be taken by the Contractor. If the Contractor disputes any direction given by the Owner pursuant to this paragraph, it shall have no right to refuse to accelerate the Work, but the Contractor shall have the right to make a Claim for additional costs in accordance with the provisions of the Contract Documents. Notwithstanding anything in this Contract to the contrary, if the Contractor fails or refuses to accelerate the Work after its receipt of the Owner's direction to do so, the Contractor shall be liable to the Owner for the Owner's actual damages incurred or accruing on each day the Contractor fails to recover, beginning on the date on which the Owner directed the Contractor to accelerate. Nothing herein shall limit any other rights or remedies that the Owner may possess under other provisions of the Contract Documents or by law.

19.5 If the Contractor submits a construction schedule that anticipates Substantial Completion before the date established in the Owner's Notice to Proceed, the Contractor shall have no claim

for additional compensation on account of any delays that prevent Substantial Completion before the date set in said Owner's Notice to Proceed.

19.6 The Owner’s approval of any submission of a schedule or a schedule update shall be limited to a determination that the schedule or update represents a reasonable plan for completion of the Work within the Contract Time, and such approval, or lack thereof, shall not limit or modify any of the Contractor’s obligations under the Contract Documents. The Contractor shall comply with the schedule most recently approved by the Owner.

19.7 The Contractor shall prepare and keep current for the Engineer’s approval, a schedule of submittals which is included in the Contractor’s construction schedule and allows the Engineer reasonable time to review submittals.

20. SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

20.1 The Contractor shall submit to the Engineer samples required in the Contract documents or as required by the Owner or Engineer for approval. Samples shall be furnished so as not to delay fabrication, allowing the Owner reasonable time for the consideration of the samples submitted. Contractor shall furnish such samples of materials, and workmanship shall be in accordance with approved samples.

20.2 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, manufacturer, supplier, or distributor to illustrate a portion of the Work.

20.3 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor or its Subcontractors and suppliers to illustrate materials or equipment for some portion of the Work.

20.4 Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

20.5 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. The purpose of their submission is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

20.6 The Contractor shall review, approve, and submit to the Engineer Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Engineer without action. The Contractor's attention is directed to the provisions of "Or Equal" Submissions/Substitutions of the Specifications.

20.7 The Contractor shall prepare and keep current, for the Engineer's approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Engineer reasonable time to review submittals.

20.8 The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Engineer. Such Work shall be in accordance with approved submittals.

20.9 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified field construction criteria, materials, field measurements, quantities, relations to existing Work, coordination with Work to be installed later, coordination with information on previously accepted Shop Drawings, Product Data, Samples, or similar submittals and verification of compliance with all of the requirements of the Contract Documents. The accuracy of all such information is the responsibility of the Contractor. In reviewing Shop Drawings, Product Data, Samples, and similar submittals the Owner and Engineer shall be entitled to rely upon the Contractor's representation that such information is complete and accurate.

20.10 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Engineer's or Owner's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Owner and Engineer in writing of such deviation at the time of submittal and the Owner has given explicit written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the Engineer's or Owner's actions.

20.11 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Engineer on previous submittals.

20.12 Informational submittals upon which the Engineer is not expected to take responsive action may be so identified in the Contract Documents.

20.13 When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Engineer shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

21. "OR EQUAL" SUBMISSIONS/SUBSTITUTIONS

21.1 Except where a product has been specified as a proprietary material, the words "or approved equal" are understood to follow the name of any maker, vendor, or product specified to be used in the Contract Documents. To determine if the materials or articles proposed by the Contractor are equal to those specified, the Engineer shall determine whether the materials or articles proposed are at least equal in quality, durability, appearance, strength and design to the material or articles named or described, and will perform at least equally the functions imposed by the design for the Work; and conforms substantially, even with deviations, to the detailed requirements for the items as described in the Specifications.

21.2 If the Contractor proposes to use a material or item of equipment which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, the Contractor shall inform the Engineer in writing of the nature of such deviations at the time the material or item of equipment is submitted for approval, and shall request written approval of the deviation from the requirements of the Contract Documents.

21.3 By making requests for substitutions, the Contractor:

1. represents that it has personally investigated the proposed substitute product and determined that it meets the conditions specified in Section 20.1;

2. represents that it will provide the same warranties and guarantees for the substitute product that it would for that specified;

3. certifies that all cost data presented with respect to the proposed substitution are accurate and complete and include all related (direct and indirect) costs under the Contract, and waives all claims for additional costs related to the substitution that subsequently become apparent; and

4. will coordinate the installation of the substitute, if approved, making such changes as may be required for the Work to be complete in all respects.

21.4 In requesting approval of deviations or substitutions, the Contractor shall provide, upon request, evidence leading to a reasonable certainty that the proposed substitution or deviation will meet the conditions set forth in Section 21.1. If, in the opinion of the Engineer, the evidence presented by the Contractor does not provide a sufficient basis for such reasonable certainty, the Engineer may reject such substitution or deviation without further investigation.

21.5 The Engineer will not approve as equal to materials or equipment specified proposed substitutions which, in the Engineer's opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Project. In order to permit coordinated design of color and finishes the Contractor shall, if required by the Engineer, furnish the substituted material in any color, finish, texture, or pattern which would have been available from the manufacturer(s) originally specified, at no additional cost to the Owner.

21.6 Any additional cost, or any loss or damage arising from the substitution or proposed substitution of any material, equipment or method for those originally specified shall be borne by the Contractor, including, without limitation, the Owner's and Engineer's costs in evaluating substitutions whether or not approved, costs of any structural, mechanical or other changes necessary to accommodate substituted materials or equipment, and costs of modifying design documents and other additional design fees, notwithstanding approval or acceptance of such substitution by the Owner or the Engineer, unless such substitution was made at the written request or direction of the Owner or the Engineer. If any approved substitution results in a cost savings, the Owner shall be entitled to a credit, reducing the Contract Sum, in an amount equal to the net reduced cost of the substituted material or equipment after taking into account such related costs.

22. SAMPLES AND TESTS

22.1 Materials to be used in the Work may be tested or inspected after reasonable notice by the Engineer and may be rejected. Except as otherwise provided in the Contract, all the cost of testing of material that fail the criteria shall be borne by the Contractor. If the Contractor requests permission to use a material that was not specified in the Contract Documents and the Engineer requires testing of such material before approving its use, the Contractor shall pay for such testing.

22.2 The source of material proposed by the Contractor shall be designated in time to permit all required testing and inspection before the material is needed for incorporation into the Work. The Contractor shall have no claim for delays due to testing if the Contractor fails to designate the proposed source or to order the material in time to provide for adequate testing and inspection. Necessary arrangements shall be made to permit the Engineer to make factory, shop, or other inspection of materials or equipment ordered for the Work, in process of manufacture or fabrication, or in storage elsewhere than the site of the Work.

22.3 The Contractor shall furnish the Engineer with samples of the materials it proposes to use in the execution of the work in sufficient time to afford the Engineer the opportunity to adequately review and, if necessary, arrange for testing of such materials.

23. DOCUMENTS AND SAMPLES AT THE SITE

23.1 The Contractor shall maintain at the site of the Work for the Owner one record copy of this Contract and of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record field changes and selections made during the construction, and one record copy of approved Shop Drawings, Product Data, Samples, and similar submittals. These shall be available to the Engineer and Owner and shall be delivered to the Engineer for submittal to the Owner upon completion of all the Work of the Project. The Contractor shall be responsible for assuring that the progress of the Work and all revisions are delineated on record Drawings by the specific trades involved on a current basis. The Owner and the Engineer shall have access to such as-built Drawings at all times. When final as-built Drawings are found by the Engineer to be complete, the Contractor shall furnish to the Engineer the record set of “as-built” Drawings in hard copy reproducible format with each sheet clearly marked "Record Drawing" and dated, and Specifications reflecting the actual conditions of the Work, together with a copy of such as-built plans on diskette in the AutoCAD format or such other format as the Owner may require. Delivery by the Contractor of the final as-built Record Drawings shall be a condition to final payment and furnishing of the Record Drawings may be carried on the punchlist with a value determined by the Owner.

24. USE OF SITE – DELIVERY AND STORAGE OF MATERIALS

24.1 The right of possession of the premises and the improvements made thereon by the Contractor shall remain at all times in the Owner. The Contractor shall confine the Contractor’s apparatus, storage of materials, and operations of Contractor’s workmen to limits indicated by law, ordinances, Contract Documents, permits, and directions of the Owner and shall not unreasonably encumber the premises. The Owner shall not be liable to the Contractor, the Subcontractors, their employees or anyone else with respect to the conditions of the premises.

24.2 Notwithstanding the designation of contract limits or the indication of temporary fences or barricades, the provisions of the Contract Documents governing certain phases or portions of the Work may require that certain operations be carried out beyond such designated limits. Such Work, if required beyond such designated limits, shall be scheduled in such a manner as to cause a minimum of inconvenience or disturbance to or interference with the normal operations of the Owner, abutters and the public. The Contractor shall obtain the Owner's prior approval and all necessary approvals from abutters, public authorities and utility companies for such operations, prosecute such operations expeditiously and restore the affected area to its original condition immediately upon completion of such operations, unless otherwise specified in the Contract Documents. All existing walkways, roadways, paved or landscaped areas disturbed by construction or over which temporary driveways or walkways are rerouted shall be restored to their original condition, immediately upon completion of the related phases or portions of the Work, unless otherwise specified in the Contract Documents.

24.3 Materials and equipment shall be progressively delivered to the site so that there will be neither delay in the progress of the Work nor an undue accumulation of materials that are not to be used within a reasonable time.

24.4 Materials stored off-site shall be stored at the expense of the Contractor in a manner that preserves their quality and fitness for the Work. Material shall be placed on wooden platforms or other hard clean surfaces and not on the ground and shall be properly protected.

24.5 If the Contractor requests the Engineer's inspection of materials stored off-site, the Contractor shall assume the Engineer's reasonable costs for travel, room, and meals associated with such inspection.

24.6 Materials stored either at the site or at some other location agreed upon in writing shall be located so as to facilitate prompt inspection and may again be inspected prior to their use in the Work.

24.7 The Contractor shall take charge of and be liable for any loss of or injury to the materials delivered at or in the vicinity of the place where the Work is being done and shall notify the Engineer as soon as any such materials are so delivered and allow them to be examined by the Engineer.

24.8 The Contractor shall provide the Owner and Engineer access to the Work in preparation and progress wherever located.

25. CUTTING AND PATCHING

25.1 The Contractor shall do all necessary cutting and patching of the work that may be required to properly receive the work of the various trades or as required by the Drawings and Specifications to complete the Work. The Contractor shall restore all such cut or patched work as directed by the Owner. Cutting of existing structure that shall endanger the Work, adjacent property, workers or the public shall not be done unless approved and directly supervised by the Owner.

25.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise

altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

26. PROTECTION AND RESTORATION OF PROPERTY

26.1 The Contractor shall not enter upon private property for any purpose without obtaining permission, and shall be responsible for the preservation of all public property, trees, monuments, and signs, along and adjacent to the street or right-of-way, and shall use every precaution necessary to prevent damage or injury thereto.

26.2 The Contractor is solely responsible for the proper and safe operation and maintenance of all utility systems within the construction limits, whether these are supplied by the Owner's distribution system or otherwise, until the Work is accepted by the Owner, and until the Owner has notified the Contractor that other arrangements have been made. The Contractor shall maintain and operate appurtenances within the construction area, which serve the distribution system, subject to periodic inspection by the Owner's operating personnel. Inspection by any representative or personnel of the Owner shall not relieve the Contractor of responsibilities in connection with operation and maintenance of these facilities and equipment. The Contractor shall notify the Owner's representatives at least 72 hours in advance of the desire to extend, connect, disconnect, turn on or off any steam, electric, water or other service from the authorized representatives of the Owner. All plumbing, heating, and electrical work, including installation of equipment and any other Work to be performed by the Contractor, shall be carried out without interference with the Owner's normal operation. Where any Work requires interruption of any service, the Contractor shall make advance arrangements with the Owner for dealing with such interruption.

26.3 The Owner will supply to the Contractor all water and electricity reasonably required for all construction requirements. Utilities furnished by the Owner will be discontinued if, in the opinion of the Owner, they are wastefully used. In such event, the Contractor shall supply thereafter all water and electricity required to complete the Work. The Contractor shall supply all hoses, extension cords and other tools necessary for the proper installation of the Work.

26.4 Adequate toilet facilities for use during construction will be supplied by the Owner. The Contractor shall leave sanitary facilities as clean as they were at the start of the Work.

26.5 The Contractor shall provide adequate facilities to keep the Site secure at all times when the Contractor's personnel are not present, from commencement of the Work until Substantial Completion, to assure that the Work, all materials and equipment stored at the Site, and all other property of the Owner located within the site limits or within other areas occupied or controlled by the Contractor, are fully and completely protected against loss or damage due to vandalism, theft, malicious mischief, pilferage or unexplained disappearance. If the Contractor fails to comply with the requirements of this Subsection 25.5, then the Owner may provide appropriate security, and charge the cost thereof to the Contractor. The Owner's provision of such security, or failure to do so, shall not relieve the Contractor of its sole responsibility to pay for loss or damage to such

property due to vandalism, theft, malicious mischief, pilferage or unexplained disappearance, to the extent not covered by the Owner's insurance.

26.6 The Contractor shall arrange for and provide all police details required by the Town of Winchester Police Department to be present at or adjacent to the site for traffic control purposes. The cost of police details so required shall be borne by the Contractor and is included in the Contract Sum.

26.7 The Contractor shall take all other necessary precautions and be responsible for any requirements and fees associated with adequate protection and safety of the site during construction and completion of all contract work, if necessary, to include temporary fencing, signs, barriers, in accordance with the Massachusetts State Building Codes, federal regulations, and local bylaws.

26.8 The Contractor shall keep the Owner's property free at all times from accumulations of waste materials or rubbish and shall remove from the Owner's property, and from all public and private property, all temporary structures, rubbish and waste materials resulting from the operation or caused by the employees, and shall remove all surplus materials resulting from the operation or caused by the employees, leaving the site smooth, clean and true to line and grade. If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor for its costs associated therewith.

26.9 The Contractor shall at the termination of this Contract, before acceptance of the work by the Owner, remove all of equipment, tools and supplies from the property of the Owner. Should the Contractor fail to remove such equipment, tools and supplies, the Owner shall have the right to remove and dispose of them, and the Contractor shall pay all costs incurred by the Owner in removing and disposing of them. The Owner shall not be responsible for storing or maintaining such items not properly removed or disposed of from the site.

27. SUBSURFACE INVESTIGATIONS

27.1 If, during the progress of the Work, the Contractor or the Owner discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the Contract Documents, either the Contractor or the Owner may request an equitable adjustment in the contract price of the contract applying to Work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a Contractor, or upon its own initiative, the Owner shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the Contract Documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and Contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the Work or a change in the construction methods required for the performance of the Work which results in an increase or decrease in the cost of the Work, the Owner shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly.

27.2 The Drawings and Specifications indicate all utilities at and adjacent to the site of which the Owner is aware. However, the Owner makes no representation or warranty that pipes, conduits, lines or other structures or equipment of public and private utility companies ("utility equipment") shown on the Drawings or referred to in the Specifications are the only utility equipment that may be encountered. Prior to commencing Work, the Contractor shall visit the site and to the extent possible shall confirm the existence and location of all utility equipment and shall, during the course of the Work, make diligent and continuous efforts to confirm the locations of all utility equipment at and adjacent to the site. The Contractor shall promptly notify the Engineer in writing, prior to commencing affected portions of the Work, of any utility equipment that the Contractor discovers and that has not been identified on the Drawings. If and as directed by the Engineer, the Contractor shall make necessary arrangements with utility companies for the protection, alteration or relocation of utility equipment necessary in connection with performance of the Work, and shall notify all municipal departments and utility companies concerned of the time and location of any work which may affect them. The Contractor shall be responsible for all costs and all claims, damages and liabilities arising directly or indirectly from any damage to utility equipment or any intentional or unintentional interruption of service occurring in connection with the Work or other operations of the Contractor.

28. DISPOSAL AND HAZARDOUS MATERIALS

28.1 The Contractor shall dispose of any and all debris, waste, and soils, outside of the limits of the Town of Winchester, including any and all material transported from the project site for disposal. The Contractor shall handle, remove, and dispose of hazardous and chemical waste in accordance with all applicable laws, and with Specification Section 02 61 00 – Contaminated Soil handling and Specification Section 31 23 40 – On- or Off-site Reuse, Disposal, or Recycling. The Contractor shall make all arrangements and obtain any approvals necessary for said disposal from the owners or officials in charge of the applicable disposal sites and shall bear all cost, including fees resulting from such disposal, including tipping fees. Garbage shall be removed daily.

28.2 No open fire shall be permitted on site without the Owner's prior written permission.

28.3 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The term "Hazardous Materials" shall include "hazardous materials" as defined in M.G.L. c. 21E and "hazardous substances" as defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980 and the Superfund Amendments and Reauthorization Act of 1986, 42. U.S.C. Section 9601 et seq., as all such laws and statutes have been amended, and regulations promulgated pursuant to such laws and statutes.

28.4 The Contractor shall promptly remedy at its own expense damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under this Section 27, except damage or loss attributable to acts or omissions of the Owner or Engineer or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable. The

foregoing obligations of the Contractor are in addition to the Contractor's obligations elsewhere in the Contract Document.

28.5 The Owner shall not be responsible for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

28.6 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under this Section 28, except to the extent that the cost and expense are due to the Owner's fault or negligence.

28.7 The Contractor shall install weather protection and provide adequate heat in the protected area from November 1 to March 31, at a minimum, as required by M.G.L. c.149, §44G.

28.8 Damages to materials in place or stored such as, but not limited to, deterioration, loss of material life cycle length, shrinkage, staining, warping, cracks, caused by inadequate Site and Weather Protection shall be immediately replaced at the Owner's or Engineer's request at the Contractor's expense.

28.9 The Contractor shall at all times protect excavations, trenches, buildings and materials, from rain water, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin and shall remove promptly any accumulation of water. The Contractor shall provide and operate all pumps, piping and other equipment necessary to this end.

28.10 The Contractor shall remove snow and ice which might result in damage or delay.

29. QUALITY OF MATERIAL

29.1 The Contractor warrants to the Owner and Engineer that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly submitted, approved, and authorized may be considered defective. If required by the Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

29.2 The Engineer may reject materials if the Engineer reasonably determines that such materials do not conform to the Contract Documents. No rejected materials, the defects of which have been subsequently corrected, shall be used in the Work except with the written permission of the Owner. No extra time shall be allowed for completion of the Work due to the rejection of non-conforming materials.

29.3 The Engineer's inspection of the Work shall not relieve the Contractor of any of its responsibilities to fulfill the Contract obligations, and defective work shall be corrected. Unsuitable work may be rejected by the Owner, notwithstanding that such work and materials have been previously accepted for payment. If the Work or any part thereof shall be found defective at

any time before the final acceptance of the whole Work, the Contractor shall forthwith correct such defect in a manner satisfactory to the Engineer, and if any material brought upon the site for use in the Work, or selected for the same, shall be rejected by the Engineer as unsuitable or not in conformity with the Contract requirements, the Contractor shall forthwith remove such materials from the vicinity of the Work.

29.4 Nothing in this Contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the Work or the site of the Project; but all such materials shall, upon being so attached or affixed, become the property of the Owner.

29.5 All items having any apparent historical or archaeological interest which are discovered in the course of any construction activities shall be carefully preserved and reported immediately to the Owner and the Engineer for determination of appropriate actions to be taken. The Owner shall be the final decision factor in determination of items of historical or archaeological interest and may or may not take possession of said items, without charge or costs to the Owner.

30. WORK HOURS AND RATES

30.1 No laborer, worker, mechanic, foreperson or inspector working within this Commonwealth in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the Work contemplated by the contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight (48) hours in any one week, or more than six (6) days in any one week, except in cases of emergency.

30.2 Every employee under this contract shall lodge, board and trade where and with whom he elects, and neither the Contractor nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person.

30.3 The Contractor shall pay to any reserve police officer employed by him in any city or town the prevailing rate of wage paid to regular police officers in such city or town.

30.4 It is the obligation of the Contractor to assure that the Contractor and all of its subcontractors comply with the requirements of the Massachusetts Prevailing Wage Law, MGL c. 149 §26-27H. The Contractor shall be responsible for all loss, cost and damage suffered or incurred by the Owner as a result of any stop work order or other enforcement action taken by the Attorney General under the authority of MGL c.149 §27, and shall release, indemnify, hold harmless and defend the Owner, the Engineer, their officers, employees and consultants, from and against all claims, actions, suits, fines, or administrative proceedings arising out of or related to the violation by the Contractor or any subcontractor of the said Prevailing Wage Law (or, in the case of the Contractor's defense obligation, the claimed violation thereof). Unless otherwise expressly provided in the Contract Documents, all payroll records required to be submitted to the Owner shall be delivered to a designated employee of the Owner, and not to the Engineer. Minimum wage rates have been determined by the State and/or Federal Labor Department and the Contractor in payment of wages shall be bound by such schedules in the performance of the Work herein provided in the Contract Documents.

30.5 There shall be paid each laborer or mechanic of the Contractor or subcontractor engaged in the Work on the project under this Contract in the trade or occupation listed in the Prevailing Wage Rate sheets, not less than the hourly wage rate set opposite the same, regardless of any contractual relationship which may be alleged to exist between the Contractor or any subcontractor and such laborers and mechanics.

30.6 When both the State and Federal Wage Rate schedules are applicable to the Project, the contractor shall pay the higher of the two Wage Rates in the trade or occupation listed and provide the required certifications, statements of compliance, and weekly payroll reporting forms required for both the State and Federal wage rate paid.

30.7 Any laborer or mechanic employed to perform work on the project under this Contract, which work is not covered by any of the listed classifications, shall be paid not less than the minimum rate of wages specified herein for the classification which most nearly corresponds to the work to be performed, and such minimum wage rates shall be retroactive to the time of initial employment of such persons in such classification.

30.8 The scheduled wage rates are minimum rates only, and the Owner will not consider any claims for additional compensation made by the Contractor because of payment by the Contractor of any wage rate in excess of those specified in this Contract.

30.9 Except as may be otherwise required by law, all claims and disputes pertaining to the classification of labor employed on the project under this Contract shall be decided by the Owner.

30.10 The Contractor shall post at appropriate conspicuous points on the site of the Project a schedule showing all determined minimum wage rates for the various classes of laborers and mechanics to be engaged in work on the project under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

30.11 The Contractor agrees that, in case of underpayment of wages to any worker under this Contract by the Contractor or subcontractors, the Owner may withhold from the Contractor out of payment due, an amount sufficient to pay such worker the difference between the wages required to be paid under this contract and the wages actually paid such worker for the total number of hours worked and that the Owner may disburse such amount so withheld by it for and on account of the Contractor to the employee to whom such amount is due. The Contractor further agrees that the amounts to be withheld pursuant to this paragraph may be in addition to the percentages to be retained by the Owner pursuant to other provisions of this Contract.

31. REPORTS, RECORDS AND DATA

31.1 The Contractor and each of the contractors subcontractors shall submit to the Owner such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this Contract.

31.2 The Contractor and each subcontractor shall prepare payrolls on forms satisfactory to and in accordance with instructions to be furnished by the Owner. Each such payroll shall show, among other things, the total number of persons and of that number the total number of minority

persons, on the payroll at skilled, semi-skilled and unskilled classifications employed by the Contractor or the subcontractor (as the case may be) upon the work covered by their Contract, the amount of each payroll and total man-hours worked for each such indicated grouping. The Contractor shall submit weekly to the Owner two certified copies of all payrolls of the Contractor and of the subcontractor. The certification with respect to each such payroll shall affirm that the payroll is correct and complete, that the wage rates contained therein for laborers and mechanics are not less than those applicable to such laborers and mechanics pursuant to this Contract, and that the classifications set forth for each laborer or mechanic conform with the work performed. The payroll records of the Contractor and each subcontractor covering all laborers and mechanics employed upon the Work shall be maintained during the course of the Work and preserved for a period of three years thereafter. Such payroll records shall contain the name and addresses for each such employee, the correct classification, rate of pay, daily or weekly number of hours worked, deductions made and actual wages paid. The Contractor and each subcontractor shall make all employment records with respect to persons employed by the work covered by this Contract available for inspection by the Owner. The Owner shall be permitted to interview employees of the Contractor of any subcontractor during working hours on the job without claims of delay by the Contractor or subcontractor to the Owner.

32. CHANGES IN THE WORK

32.1 All changes in the work, including any increase, decrease, or other equitable adjustment in the Contract Sum or in the time for performing the Contract, shall be authorized in the form of one, or a combination of, the following written instruments: Change Order, Construction Change Directive, or a Minor Change in the Work. The term "equitable adjustment" as used in this paragraph shall include all adjustments to the Contract Sum or time to which the Contractor or the Owner is entitled pursuant to M.G.L. c.30 §§39N and 39O and such equitable adjustment shall be made in accordance with the provisions of this Article.

32.1.1 A Minor Change is a written order binding on the Contractor issued by the Engineer, with the concurrence of the Owner, not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. The Contractor shall carry out such written orders promptly.

32.1.2 A Change Order is a written instrument prepared by the Engineer and signed by the Owner, Contractor, and Engineer, stating their agreement regarding a change in the work, including a change in the Contract Sum or Contract Time, without invalidating the Contract.

32.1.3 A Construction Change Directive is a written order prepared by the Engineer and signed by the Owner, and Engineer, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum, or Contract Time, or both. The Owner may, by Construction Change Directive, and without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted by Change Order, accordingly.

32.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Engineer; a Construction Change Directive requires agreement by the Owner and the Engineer and

may or may not be agreed to by the Contractor; an order for a Minor Change in the Work may be issued by the Engineer with the concurrence of the Owner.

32.3 Change Orders and Construction Change Directives must be counter-signed by the Owner in order to be effective. When Change Orders and/or Construction Change Directives increase the cost of the Work, no obligation shall be incurred without a duly executed Purchase Order, issued and approved, in the amount of such increase.

32.4 Upon request of the Owner or the Engineer, the Contractor shall, without cost to the Owner, submit to the Engineer and the Owner, in such form as the Engineer may require, a "Change Proposal" including a full description of the character and scope of work involved in any proposed extra Work or change in the Work, an accurate written estimate of the cost of such proposed change including all elements of pricing in appropriate detail, and an explanation of the impact of the proposed change on the construction schedule. The cost estimate shall indicate the quantity and unit cost of each item of material or other product and the number of hours of Work and hourly rate for each class of labor, as well as the description and amounts of all other costs chargeable under the terms of this article. If required by the Engineer or the Owner, in order to establish the exact cost of new Work added or of previously required Work deleted, the Contractor shall obtain and furnish to the Engineer bona fide proposals (on letterhead) from Subcontractors, Sub-subcontractors or recognized suppliers for furnishing labor and materials included in such Work, including the same supporting information. The Contractor shall promptly revise and resubmit such cost estimate if the Engineer or the Owner determines that it is not in compliance with the requirements of this article, or that it contains errors of fact or mathematical errors. The Contractor shall state in the Change Proposal any extension of the Contract Time that the Contractor believes is necessary if the change or extra Work is ordered or that the Contractor believes it is entitled to for any other reason. If the Contractor claims an extension of the Contract Time, the Contractor shall provide in the Change Proposal a full explanation of the need for a time extension with supporting documentation, including a schedule impact analysis (sometimes referred to as a time impact analysis) in form acceptable to the Owner and the Engineer indicating the activities affected and overall impact on the schedule of the proposed change.

32.5 Change Proposals shall be furnished promptly so as to occasion no delay in the Work, and shall be furnished at the Contractor's expense. By submitting a Change Proposal, the Contractor shall be deemed to certify in writing that the Change Proposal includes all Work affected by the change, that the cost estimate indicated in the Change Proposal includes all direct, supplemental, indirect, consequential, serial and cumulative costs and delays, as applicable, and that those costs and delays would be necessarily incurred if the change or extra Work is ordered, despite the Contractor's commercially reasonable and diligent efforts to mitigate them. The Contractor shall cooperate fully with the Owner and the Engineer to provide sufficient substantiation and explanation of costs and schedule impacts to allow the Owner and the Engineer to reasonably evaluate the Change Proposal.

32.6 If the Contractor believes that a change has occurred by reason of any Work performed or materials furnished or by reason of any direction or interpretation by the Owner or the Engineer or by reason of any other event, circumstance or occurrence, the Contractor shall submit to the Owner a notice of claim or Contractor Change Notice and shall thereafter request that a Change Order be issued by submitting to the Owner a "Contractor Change Request" within ten (10) days of

discovery of the need for the change reflected in the Contractor Change Requests. A Contractor Change Request shall be expressly identified as such and shall contain, at a minimum, the information and certifications required to be included in a Change Proposal. Without limitation, a Contractor Change Request must detail the character and scope of the Work involved and provide clear and detailed justification that a change has occurred or that the Contractor is otherwise entitled to an adjustment in the Contract Sum or the Contract Time, and shall include the applicable Contract Document references supporting the Contractor's claim and the efforts taken and to be taken by the Contractor to prevent or minimize costs or schedule extension. All Contractor Change Requests submitted by the Contractor shall provide sufficient detail for the Owner to understand the basis for the adjustment in compensation or schedule extension requested. The Contractor shall furnish, within five (5) days after request from the Owner or the Engineer, such further information and details including but not limited to books of account, records and other documents of the Contractor or its Subcontractors or Sub-subcontractors as may be required by the Owner or the Engineer to determine the facts or issues involved in the Contractor Change Request. The Contractor's failure to deliver such information shall be sufficient cause for rejecting any Contractor Change Request. If the Owner fails to notify the Contractor as to the Owner's determination with respect to a Contractor Change Request within thirty (30) days after receipt by the Owner of a full and complete Contractor Change Request as provided herein, such failure shall be deemed to constitute a determination by the Owner that no change has occurred, and such deemed determination shall be effective as of the last day of such thirty-day period. If the Owner rejects (or is deemed to have rejected) a Contractor Change Request in whole or in part and the Contractor disputes such rejection, such dispute shall be resolved as provided in Article 35. Failure of the Contractor to comply strictly with the notice requirements and time periods set forth in Article 34 and this Article 32 shall be conclusively deemed to constitute a waiver by the Contractor of any Claim or any other right to an adjustment in the Contract Sum or the Contract Time with respect to any Work or any other occurrence, event or circumstance which is the subject of a Contractor Change Request, Change Proposal or other Claim of the Contractor.

32.7 This contract shall not be deemed to have been made until the auditor or accountant or other officer of the Owner having similar duties has certified thereon that an appropriation in the amount of this contract is available therefore and that an officer or agent of the Owner has been authorized to execute said contract and approve all requisitions and change orders. No order to the Contractor for a change in or addition to the Work, whether in the form of a drawing, plan, detail or any other written instruction, unless it is an order which the Contractor is willing to perform without any increase in the contract price, shall be deemed to be given until the auditor or accountant, or other officer of the Owner having similar duties, has certified thereon that an appropriation in the amount of such order is available therefore; but such certificate shall not be construed as an admission by the Owner of its liability to pay for such Work.

32.8 The Contractor shall perform all work as directed by the Engineer and Owner, and if the Engineer and Owner determines that certain work for which the Contractor has requested a change order does not represent a change in the Work under the Contract, or if the Contractor, the Engineer, and the Owner cannot agree to the amount of compensation for a change order, the Contractor shall perform said work under protest and must follow the notice requirements and maintain the records required by Claims in the Contract Documents.

33. STATUTORY CHANGE ORDER PROVISIONS

33.1 IN addition to the foregoing, Contract may seek an equitable adjustment pursuant to Massachusetts General Laws Chapter 30, §39N, reproduced below, where applicable.

"Chapter 30: Section 39N. Construction contracts; equitable adjustment in contract price for differing subsurface or latent physical conditions

Section 39N. Every contract subject to section forty-four A of chapter one hundred and forty-nine or subject to section thirty-nine M of chapter thirty shall contain the following paragraph in its entirety and an awarding authority may adopt reasonable rules or regulations in conformity with that paragraph concerning the filing, investigation and settlement of such claims:

If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."

34. TIMELY DECISION BY OWNER OR ENGINEER

34.1 Whenever this Contract requires the Owner or its Engineer to make a decision during construction of the Project, on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, that decision shall be made promptly and, in any event, no later than thirty days after receipt of a written submission for such decision by the Contractor; but if such decision requires extended investigation and study, the Owner or the Engineer shall within thirty days after the receipt of the submission, give the Contractor written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made.

34.2 The Contractor shall notify the owner in writing of a "Timely Decision" request that has not received response as required prior to the expiration of twenty-eight days of the written request.

35. CLAIMS AND DISPUTES

35.1 A Claim is a demand by one of the parties seeking adjustment or interpretation of Contract terms or contract documents, payment of money, or extension of time. Claims also include other

disputes between the Owner and Contractor or the Contractor and the Engineer arising out of the Contract. Claims must be initiated by written notice to the Owner. The responsibility to substantiate a claim shall rest with the Contractor.

35.2 The Contractor shall notify the Owner within seven (7) days after occurrence of the event giving rise to any claim. The Contractor shall fully document and detail the factual and contractual basis of the Claim in writing to the Owner within thirty (30) days of the initial seven (7) day notification of claim. The Contractor shall have the burden of demonstrating the effect of the claim and shall furnish the Owner with such documentation and information as the Owner may reasonably require.

35.3 When a claim is resolved by a Change Order signed by the Owner and the Contractor, the Change Order shall represent the entire compensation, including without limitation all direct, indirect, consequential, and other costs, mark-ups, and damages and all extensions of time, owed to the Contractor for the events or circumstances giving rise to the claim.

35.4 Pending resolution of a claim or dispute, the Contractor must proceed with the disputed Work, as directed by the Engineer or the Owner. The Contractor must give written notice to the Owner and the Engineer stating that the Contractor is proceeding with the disputed work under protest. Accurate records of the nature and extent of the disputed Work and of the time spent, labor, materials, and equipment used on the disputed Work shall be maintained by the superintendent and verified daily by the Owner or Engineer. Failure of the Contractor to maintain such records shall cause the Contractor to forfeit its claim to additional compensation for such disputed work.

35.5 Pending final resolution of Claims, unless agreed in writing by the Owner, the Contractor shall proceed diligently with the performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

35.6 The Owner will not be obligated under Claims to grant an extension of time unless the contractor can demonstrate that the critical path has been negatively affected.

35.7 The Owner shall resolve all Claims in the manner it deems appropriate and shall provide the Contractor with a written description of such resolution within thirty (30) days of receipt of the Claim. If the Owner cannot resolve the Claim within thirty (30) days, the Owner shall send a written notice to the Contractor. If the Owner fails to resolve a Claim within the thirty (30) days of receipt, or any extended period, or by final payment, the Claim shall be deemed to be denied by the Owner.

35.8 The Contractor, as a precondition to commencing litigation shall have fully complied with the requirements that its claim has been denied or deemed denied and that the Contractor has complied with all other applicable provisions of the Contract Documents, including those provisions that are applicable to the Work that is the subject of the Claim.

35.9 Notwithstanding any contrary provision of this contract, no decision by the Owner or by the Engineer on a dispute, whether of fact or of law, arising under said contract shall be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily, is unsupported by substantial evidence, or is based upon error of law.

36. SCHEDULE OF VALUES

36.1 Before the first Application for Payment, the Contractor shall submit to the Engineer a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Engineer or Owner may require. The Schedule of Values shall be approved by the Owner. This schedule, unless objected to by the Engineer or Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Contractor shall not imbalance its Schedule of Values nor artificially inflate any element thereof. The violation of this provision by the Contractor shall constitute a material breach of this Contract.

36.2 The schedule of values shall contain a separate item for each Section of the Specifications broken down in such form as the Engineer may require.

37. APPLICATIONS FOR PAYMENT

37.1 Retainage – The Contractor agrees that the Owner may retain from all of the payments due, including final payment, under this contract, five percent (5%) of the amount thereof, and may expend the same, in the manner hereinafter provided, in making such repairs or replacements of said work as the Owner may deem expedient.

37.2 At least (30) days prior to the date established for progress payments, the Contractor shall submit to the Engineer an itemized Application for Payment for the Work completed consistent with the Contract Documents and the Schedule of Values including lien waivers from the Contractor and all subcontractors and suppliers and all other supporting documentation that the Owner may reasonably require. The Engineer’s certification of said application shall signify that the Work has progressed to the point indicated and that, to the best of the Engineer’s knowledge and information, the quality of the Work is in accordance with the Contract Documents. The Engineer’s certification is subject to an evaluation of the Work for conformance with the Contract Documents prior to Substantial Completion, and subsequent results of tests and inspections, to correction of minor deviations from the Contract Documents and to specific qualifications expressed by the Engineer. The certification of the Application for Payment shall not eliminate the Contractor’s requirements for the Work to comply with the Contract Documents at any time.

37.3 Such Application for Payment shall be notarized by the Contractor. Applications for payment shall not include requests for payments that the Contractor does not intend to pay to a Subcontractor or material supplier based on a dispute or any other reason. The Contractor shall certify that all previous certificates for payment have been previously issued and payments received from Owner, to the best of the Contractor’s knowledge, are free of liens, claims, security interests, or encumbrances in the favor of the Contractor, subcontractors, material suppliers, or other persons or entities making a claim by having provided labor, materials, equipment relating to the Work. The Owner may request certification from subcontractors or a waiver of liens to this effect.

38. CERTIFICATES FOR PAYMENT

38.1 The Engineer shall mark the date of receipt on the Contractor's Application for Payment. The Engineer shall, within seven days after receipt of the Contractor's Application for Payment:

1. issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Engineer determines are properly due according to the terms of the Contract Documents;

2. return the application to the Contractor if it is not in proper form or containing computations not arithmetically correct;

3. make changes to the application; or

4. reject in whole or in part the application and notify the Contractor and Owner in writing of the Engineer's reasons for withholding certification in whole or in part. Such reasons may include, without limitation:

    i. The quality of a portion, or all, of the Contractor's work not being in accordance with the Contract Documents;

    ii. The quantity of the Contractor's work not being as represented in the Application for Payment;

    iii. The Contractor's rate of progress being such that, in the opinion of the Owner, Substantial or Final Completion, or both may be delayed or that the Work cannot be completed for the unpaid balance of the Contract Sum;

    iv. The Contractor's failure to use Contract funds, previously paid the Contractor by the Owner, to pay Contractor's Project-related obligations, including, but not limited to, subcontractors, laborers and material and equipment suppliers;

    v. Claims made, or likely to be made, against the Owner or its property;

    vi. Loss or damage cause by the Contractor;

    vii. Any lien or attachment not discharged as required under Section 38.4; or

    viii. Contractor's failure or refusal to perform any of its obligations under the Contract Documents.

38.2 The Owner may make changes in any Application for Payment submitted by the Contractor and the payment due on said Application for Payment shall be computed in accordance with those changes. The Owner may require the Contractor to resubmit the Application for Payment with the Engineer and the Owners corrections reflected. Such resubmitted Application for Payment shall be clearly marked a resubmittal and dated.

38.3 No certificate for payment nor any progress payment shall constitute acceptance of Work not in accordance with the Contract Documents.

38.4 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner upon the first to occur of (a) incorporation into the Work and (b) no later than the time of payment on such Application. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall , to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work. If a lien is filed or claimed against the Work by any Subcontractor, laborer, or supplier, the Contractor shall immediately, at its expense, bond such lien in accordance with Massachusetts General Laws, or otherwise cause such lien to be discharged in a manner acceptable to the Owner and its lender; provided, however, that the Contractor shall not be obligated to bond or discharge any such lien to the extent such lien is the result of the Owner's failure to make payment for the Work in accordance with the Contract. If the Contractor shall fail to do so, the Owner may, at its option and at the Contractor's expense, bond such lien or otherwise cause it to be discharged, and deduct all amounts so paid from the Contract Sum or from the next succeeding Application(s) for Payment until the total amount of same is recouped by the Owner.

38.5 No portion of the Contract Sum will be obligated for payment of costs incurred with respect to any action of the project after the Owner has requested that the Contractor furnish data concerning such action prior to proceeding further, unless and until the Contractor is thereafter advised in writing by the Owner that there is no objection to so proceeding.

38.6 The Contractor agrees to refund to the Owner, payment which the Owner determines were not properly due to the Contractor under the terms of the Contract Documents.

39. PAYMENT FOR STORED MATERIALS

39.1 The Contractor shall include in such Application for Payment only such materials as are incorporated in the Work. Except however, the Contractor may, with prior written authorization of the Owner, include the value of materials or equipment delivered at the site of the Work, or at some location agreed to in writing by the Owner and Engineer and that shall be suitably stored and within 25 miles of the Project and accessible for inspection and testing as determined to be necessary by the Engineer and Owner, upon delivery to the Owner of:

1. a Transfer of Title in a form acceptable to the Owner; and

2. a receipt of payment by the Contractor for stored materials and equipment charges for storage, insurance or encumbrances, and transportation costs to the Project, and

3. a receipted invoices or other acceptable proof of prior payment by the Contractor for such materials or equipment; and

4. a stored materials insurance binder that covers the materials for which payment is requested, that names the Owner as an insured party should the stored materials be subjected to any vandalism, casualty, loss, or theft prior to their inclusion in the Work.

5. Written confirmation by the Engineer to the Owner that this material(s) or equipment, in the judgment of the Engineer meets the requirements of the Contract Documents, is ready for prompt use; and is properly stored by the Contractor and adequately protected until incorporated into the Work.

40. PROGRESS PAYMENTS

40.1 After the Engineer has issued a Certificate for Payment, the Owner shall make payments to the Contractor in accordance with M.G.L.c.30 39K provided below.

40.1.1 *"Chapter 30: Section 39K. Public building construction contracts; payments*

Section 39K. Every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building by the commonwealth, or by any county, city, town, district, board, commission or other public body, when the amount is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars in the case of any county, city, town, district, board, commission or other public body, shall contain the following paragraph:— Within fifteen days (30 days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five per cent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one per cent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as provided in section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate than charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen days (twenty-four days in the case of the commonwealth) after receipt of such a periodic estimate from the contractor, at the

place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on said periodic estimate shall be computed in accordance with the changes so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in sub-bid form as required by specifications and a column listing the amount paid to each subcontractor and sub-subcontractor as of the date the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt marked on the estimate.

A certificate of the Engineer to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.

Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination in the evaluation

form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149.”

41. SUB-CONTRACTOR PROGRESS PAYMENTS

41.1 The Contractor shall make payments to Subcontractors in accordance with M.G.L.c.30 39F provided below.

41.1.1 “Chapter 30: Section 39F. Construction contracts; assignment and subrogation; subcontractor defined; enforcement of claim for direct payment; deposit, reduction of disputed amounts

Section 39F. (1) Every contract awarded pursuant to sections forty-four A to L, inclusive, of chapter one hundred and forty-nine shall contain the following subparagraphs (a) through (i) and every contract awarded pursuant to section thirty-nine M of chapter thirty shall contain the following subparagraphs (a) through (h) and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of

that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided, that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient

to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

(i) If the subcontractor does not receive payment as provided in subparagraph (a) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (a), the subcontractor may demand direct payment by following the procedure in subparagraph (d) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h).

(2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority or which are on deposit pursuant to subparagraph (f) of paragraph (1) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.

(3) "Subcontractor" as used in this section (i) for contracts awarded as provided in sections forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (a) of section thirty-nine M of chapter thirty shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars.

(4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party

aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1).

(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1) any amount held under a trustee writ or pursuant to a restraining order or injunction."

42. WARRANTY

42.1 The Contractor warrants to the Owner and Engineer that all of the materials and equipment furnished under the Contract will be of good quality and new unless otherwise required by the Contract Documents, that all of the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. Unless otherwise provided, all special guarantees and warranties referred to in the Contract Documents shall commence as of the date of Substantial Completion of the Work, except that warranties on any items or systems completed after Substantial Completion shall commence when such items or systems have been completed. All such guarantees and warranties shall extend for the period of time provided therein. Copies of all such warranties shall be submitted to the Owner prior to final payment. The failure to deliver a required guarantee or warranty shall constitute a failure to fully complete the Work in accordance with the Contract Documents. Delivery by the Contractor shall constitute the Contractor's guarantee to the Owner that the warranties will be performed in accordance with their terms and conditions. All Subcontractors' and manufacturers' warranties required under the Contract Documents shall be deemed to be assigned to the Owner pursuant to this Contract whether or not such warranties are physically delivered to the Owner as required.

42.2 The warranties in this Section shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

42.3 The Contractor shall be responsible for determining that all materials furnished for the Work meet the requirements of the Contract Documents. The Engineer may require the Contractor to produce reasonable evidence that a material meets such requirements, such as certified reports of tests by qualified testing laboratories, reports of studies by qualified experts, or other evidence which the Engineer requests that would lead to a reasonable certainty that the material used, or proposed to be used, for the Work meets the Contract Documents requirements. All such data shall be furnished at the Contractor's expense.

42.4 Any additional cost, or any loss or damage arising from the substitution of any material or any method for Work originally specified shall be paid by the Contractor, unless such substitution was made at the written request or direction of the Owner or Engineer.

42.5 No additional charge shall be made by the Contractor for attending meetings at the site to diagnose problems or to instruct the Owner's personnel in the proper operation or maintenance of the Work, or for making initial or seasonal adjustments (not including normal maintenance) of mechanical systems or other Work during the applicable warranty period. The Contractor shall provide such service promptly upon request from the Owner. In case of emergency, service shall be provided as necessary to avoid loss or damage or to maintain normal use of the premises.

43. GENERAL GUARANTY

43.1 If at any time during the period of one (1) year from the date of Substantial Completion part of the Work, or any material or equipment that is part of the Work, shall, in the reasonable determination of the Engineer or Owner, require replacing or repairing due to the fact that it is broken, defective, or otherwise does not conform to the Contract Documents, the Owner will notify the Contractor to make the required repairs or replacement.

43.2 If the Contractor shall neglect to commence such repairs or replacement to the satisfaction of the Owner within ten (10) days from the date of in hand personal delivery or mailing such notice, then the Owner may employ other persons to make the same.

43.3 The Contractor agrees, upon demand, to pay to the Owner all amounts, which the Owner expends for such repairs or replacements.

43.4 During this one-year guarantee period any corrective work shall be performed in accordance with the applicable terms of this Contract. For items of work completed after use and occupancy has been taken, the one year guarantee shall commence at the time the Owner accepts such items.

43.5 The one year guarantee shall not limit any express guaranty or warranty provided elsewhere in the Contract Documents, nor does it limit the time which proceedings may be commenced to establish Contractor's liability with respect to the Contractor's obligations of the Contract Documents, nor does it limit the time of the obligations of the Contract Documents of unforeseen conditions or failure to carry out work according to the Contract Documents.

43.6 The Contractor's obligation to correct Work is in addition to, and not in substitution of, such guarantees or warranties as may be required in the various Sections of the Specifications.

44. ENERGY STAR

44.1 The Contractor shall be responsible for achieving and providing Energy Star Certification prior to Substantial Completion approval.

44.2 The Contractor shall prepare, submit, and pay processing fee for all applications for rebates for Energy Star Components, Energy Star Certifications, or non-Energy Star components that are available as part of the Work or any components of the Work for the project.

44.3 The Contractor shall verify that all Rebate refunds are made payable and delivered to the Owner with the appropriate project reference annotated thereof.

45. SUBSTANTIAL COMPLETION

45.1 Substantial completion is the stage in the progress of the Work when the Work or a designated portion of the work is sufficiently complete and in accordance with the Contract Documents so that the Owner can occupy or use the Work for its intended purpose with only minor items which have no material effect on the use, function or value of the Work and which can be corrected or completed without any interference with the Owner's use of the Work remaining to be corrected or completed.

45.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Engineer a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents.

45.3 Upon receipt of the Contractor's list of items to be completed or corrected, the Engineer shall promptly make a thorough inspection and prepare a "punch list", setting forth in accurate detail any items on the Contractor's list and additional items that are not acceptable or are incomplete.

45.4 If, after receipt of the Contractor's list, the Engineer determines that the Work is not substantially complete, the Engineer shall inform the Contractor of those items that must be completed before the Engineer will prepare a punch list. Upon completion of those items, the Contractor shall again request the Engineer to prepare the punch list.

45.5 When the punch list has been prepared, the Contractor shall arrange a meeting with the Engineer and Subcontractors to identify and explain all punch list items and address questions on the work which must be done before final acceptance.

45.6 The Engineer may revise the punch list, from time to time, to ensure that all items of the Work are properly completed.

45.7 The Contractor shall complete all the remaining items of the Work, as soon as possible, and in any event within one hundred and twenty days after Substantial Completion, unless the

Engineer determines that a shorter time period for completion is appropriate, in which event the Contractor must complete the Contract work within such period.

45.8 If the Contractor fails to complete the remaining items of Work within the time period provided the Owner may arrange for other contractors to complete such items and the direct and indirect costs of such completion shall be charged against the balance due the Contractor or, if no such balance remains, the Contractor shall pay the Owner the costs of such completion. Alternatively, the Owner may invoke the performance bond of the Contractor and demand that the surety shall complete the remaining items of work in a timely manner.

45.9 The Engineer will conduct up to three (3) inspections of completed punch list items. The Contractor shall be responsible for the costs of additional inspections required to verify successful completion of the punch list.

45.10 Upon verification of submittals and inspection by the Owner and Engineer that the Work or a portion of the Work the contractor has requested has reached Substantial Completion, the Owner shall authorize the Engineer to prepare a Certificate of Substantial Completion establishing the Date and stating the responsibilities of the Owner and the Contractor for utilities, heat, damage, insurance, maintenance, and security. The Contractor and the Owner shall provide written acceptance of the terms of the Certificate.

46. PARTIAL OCCUPANCY

46.1 The Owner may partially occupy or use a portion of the Work that has not reached Substantial Completion. In such an event, the Owner and the Contractor shall prepare a written agreement agreeing on the terms of payments for security, maintenance, heat utilities, damage to the Work, insurance, correction of the Work, and warranties. The Engineer shall inspect and document the area, with the Owner and the Contractor that shall be Partially Occupied prior to the Owner's partial occupancy. Partial Occupancy by the Owner shall not constitute acceptance of any Work not complying with the Contract Documents.

46.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Engineer shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

46.3 Upon receipt of notice of intent to partially occupy, the Contractor shall promptly secure and submit to the Engineer endorsement from all insurance carriers issuing policies covering the Work permitting use and occupancy of the Work, or any designated portion thereof, by the Owner prior to Substantial Completion of the entire Project.

47. FINAL PAYMENT

47.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Engineer will promptly make such inspection and, when the Engineer finds the Work acceptable under the Contract Documents and the Contract fully performed, the Engineer will promptly issue a final Certificate for Payment stating that to the best of the Engineer's knowledge, information and belief, and on the basis of the Engineer's on-site visits and inspections, the Work has been completed in

accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Engineer's final Certificate for Payment will constitute a further representation that conditions listed in Section 47.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

47.2 Prior to and as a condition precedent to final payment, all of the following matters shall have been resolved and documents and items shall have been received and approved in writing by the Owner: (1) final documents of similar nature to those required by the Contract Documents in connection with any Application for Payment hereunder; (2) proof of the satisfactory completion of all required inspections and issuance of all final permits, approvals, sign-offs, certificates, affidavits, and authorizations for use and occupancy of the Project required by any authority having jurisdiction, including an unconditional and full permanent certificate of occupancy, (3) formally prepared "as built" Record Drawings, Specifications, records and related data, all in accordance with the requirements of the Contract Documents, (4) all operating and maintenance manuals and parts lists required by the Contract Documents, (5) all guarantees and warranties to which the Owner is entitled hereunder, (6) satisfactory proof that all claims arising out of the Work and any liens arising out of the same that have been filed or recorded have been released or bonded, (7) acknowledgement of prior payments and final waivers of lien from the Contractor and all Subcontractors and suppliers, (8) the Engineer's certificate certifying that the Work is complete and complies with the Contract Documents, (9) if applicable, a satisfactory report by the Contractor that is approved by the Engineer that all mechanical systems have been approved and are properly balanced, (10) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible have been paid or otherwise satisfied, (11) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (12) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (13) consent of surety, if required, to final payment, and (14) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor shall furnish a bond satisfactory to the Owner to indemnify the Owner against any claim, including any lien that a Subcontractor may assert against the Owner.

47.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Engineer so confirms, the Owner shall, upon application by the Contractor and certification by the Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Engineer prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

47.4 The making of final payment shall constitute a waiver of claims by the Owner except those arising from:

1. liens, claims, security interests or encumbrances arising out of the Contract and unsettled;

2. failure of the Work to comply with the requirements of the Contract Documents;

3. terms of warranties required by the Contract Documents; or

4. faulty or defective work appearing after Final Payment.

47.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

47.6 The Owner may withhold from payment on the final Application for Payment any amount to which it would have been entitled to withhold payment on any other Application for Payment pursuant to Section 38.

48. RECORD KEEPING

48.1 The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.

48.2 Until the expiration of six years after final payment, the Inspector General, the Owner, and the Department shall have the right to examine any books, documents, papers or records of the Contractor and Subcontractors that directly pertain to, and involve transactions relating to the Contractor and Subcontractors.

48.3 The Contractor shall describe any change in the method of maintaining records or recording transactions which materially affects any statements filed with the Owner including the date of the change and reasons therefor, and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.

49. TERMINATION

49.1 The Owner shall, in addition to any other rights or remedies it may have under this Contract or pursuant to any applicable law, have the right to terminate the employment of the Contractor if the Contractor:

1. repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

2. fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and subcontractors;

3. repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of the Owner or any other public authority;

4. is guilty of substantial breach of a provision of the Contract Documents;

5. sublets or assigns all or any portion of the Work, the Contract, or claims thereunder, without the prior written consent of the Owner, except as provided in the Contract;

6. the Engineer and/or the Owner has determined that the rate of progress required on the project is not being met, and that Substantial Completion of the Work shall not occur consistent with the Contract Documents; or

7. the Contractor has violated the Contract Documents by providing sub-standard workmanship in the opinion of the Engineer and/or the Owner.

49.2 If the right of the Contractor to proceed is so terminated, the Owner may, without prejudice to any other rights or remedies of the Owner, and after giving the Contractor and the Contractor's surety, five (5) business days' written notice, terminate the Contract and the employment of the Contractor and may, subject to any prior rights of the surety, take any one or more of the following actions:

1. take possession of and utilize in completing the Work such materials, appliances, supplies, plant and equipment as may be on the site of the Work, and necessary therefore. The Owner shall not be liable for any depreciation, loss or damage to said materials, machinery, implements or tools during said use and the Contractor shall be solely responsible for their removal from the Project site after the Owner has no further use for them;

2. exclude the Contractor from the site of the Work;

3. accept assignment of subcontracts in accordance with Section 9.3 of this Contract;

4. finish the Work by whatever reasonable method the Owner may deem expedient through the Owner's forces or the hiring of other contractors; or

5. require the surety or sureties to complete the Contract.

49.3 Upon termination of the Contract by the Owner, no further payments shall be due the Contractor until the Work is completed. If the unpaid balance of the Contract Sum shall exceed the cost of completing the Work, including all overhead costs, the excess shall be paid to the Contractor. If the cost of completing the Work shall exceed the unpaid balance, the Contractor or the Contractor's sureties shall pay the difference to the Owner. The cost incurred by the Owner, as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Owner at the Contractor's request. This obligation for payment shall survive termination of the Contract.

49.4 All expenses charged under termination shall be deducted and paid by the Owner out of any monies then due or to become due the Contractor under this Contract; and in such accounting

the Owner shall not be held to obtain the lowest figures, by competitive bid or otherwise, for the completion of the Work or any part thereof.

49.5 Expenses incurred in termination shall also include, but not be limited to, costs for engineering extra services, additional Clerk of the Work services, and Owner's representative services required, in the opinion of the Owner, to successfully inspect and administer the construction contract through final completion.

49.6 In addition to the termination rights provided in Sections 49.1-75.5 above, the Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

1. cease operations as directed by the Owner in the notice;

2. take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

3. except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment in an amount equal to direct, out-of-pocket costs incurred by the Contractor (including costs incurred in the cancellation of subcontracts). The Contractor shall include in all subcontracts provisions allowing for the termination of such subcontracts for convenience without penalty or unearned profit.

50. PROTECTION OF LIVES AND HEALTH

50.1 The Contractor shall comply with all applicable laws both the Commonwealth of Massachusetts and Federal laws, ordinances, rules, regulations, and lawful orders of public authorities regarding safety of persons or property or protection from damage, injury or loss, and provide all safety training, and verification of license requirements for all Subcontractors and employees of the Contractor. The Contractor shall bear the cost of all loss and shall reimburse the Owner for all costs incurred regarding any loss.

50.2 In order to protect the lives and health of employees under the Contract, the Contractor and Subcontractors shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc. and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of the work and for any damage which may result from their failure or their improper construction, maintenance, or operation.

50.3 The Contractor shall designate the Superintendent, or a member of the Contractor's organization to prevent accidents, and provide written notice to the Owner of the person so designated as the Safety Officer.

50.4 The Contractor shall provide and submit to the Owner, Certification under pains and penalties of perjury that the Contractor is able to furnish labor in harmony with all other elements of labor employed in the Work and that all employees employed on the work site have successfully completed at least ten (10) hours of United States Occupational Safety and Health Administration (OSHA) approved training.

50.5 The Owner shall have the authority to clean up or correct any situation which presents a hazard or unsafe condition or affects the Owner's use of the facility, without any notice requirements to the Contractor. The cost of the Owner's correction of any unsafe condition caused by an act or omission of the Contactor or Subcontractor shall be deducted from the Contract Sum and withheld from any payments otherwise due to the Contractor, at the sole election of the Owner.

51. QUALIFICATIONS FOR EMPLOYMENT

51.1 No persons under the age of sixteen years shall be employed on the project under this Contract. No persons whose age or physical condition is such as to make that persons employment dangerous to their health or safety or to the health or safety of others shall be employed on the project under this Contract; provided, that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform. No person currently serving sentence in a Penal or Correctional Institution and no inmate of an Institution for mental defectives shall be employed in the project under this Contract.

52. MEMBERS OF LOCAL GOVERNING BODY, OR OTHER PUBLIC OFFICIALS

52.1 The Contractor shall incorporate or cause to be incorporated, in all of its agreements, contracts or subcontracts a provision prohibiting such interest pursuant to the purposes of this section.

52.2 No member, officer or employee of the Owner, or its designees or agents, no member of the governing body of the locality in which the project is situated, and no other public officials, member, officer or employee of the Town of Winchester, or its designees or agents, no members of the governing body of such locality or localities who exercises any functions or responsibilities with respect to the project during their tenure or for one year thereafter, shall have any interest, direct or indirect, in any agreement, contract or subcontract, or the proceeds thereof, for work to be performed in connection with the project assisted under this Contract.

53. COMPLIANCE WITH LOCAL, STATE AND FEDERAL LAWS

53.1 The Contract shall be governed by the law of the Commonwealth of Massachusetts without respect to its choice of law rules.

53.2 The Contractor's Work hereunder shall be subject to all applicable Federal, State, and local laws, codes, and regulations, and order of court or administrative agencies. The Contractor shall

comply, and shall require any subcontractor to comply, with the below cited Local, State, and Federal Laws, and shall incorporate these laws in any written agreement between the Contractor and a subcontractor. Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, whether expressly stated or not.

53.3 If the Contractor is a foreign corporation, it shall comply with M.G.L. c. 156D, and M.G.L. c.30, §39L.

53.4 During the performance of his contract, the Contractor and all of (his) Subcontractors (hereinafter collectively referred to as the Contractor), for himself, his assignees, and successors in interest, agree as follows:

1. In connection with the performance of Work under this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, sex, sexual orientation, genetic information, ancestry, handicap, or any other basis prohibited by law. The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion, or transfer; recruitment advertising; recruitment layoff; termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship.

2. The Contractor, in the performance of all Work after award will not discriminate on grounds of race, color, religious creed, national origin, age, sex, sexual orientation, genetic information, ancestry or handicap, or any other basis prohibited by law, in employment practices, in the selection or retention of Subcontractors, or in the procurement of materials and rentals of equipment.

54. CONTRACTOR'S ACCOUNTING METHODS REQUIREMENTS

54.1 The words defined herein shall have the meaning stated below whenever they appear in this Article 54:

1. "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a Contract as defined in Subsection 54.1.2.

2. "Contract" means any contract awarded or executed pursuant to M.G.L. c.7, §38A1/2 - 380, inclusive, and any contract awarded or executed pursuant to M.G.L. c. 25A, §11C, M.G.L. c. 30, §39M, or M.G.L. c.149, §44A-44H, inclusive, which is for an amount or estimated amount that exceeds the dollar amount set forth in M.G.L. c.30, §39R.

3. "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

4. "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public account under the laws of the place of his residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the Owner.

5. "Audit," when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a CERTIFIED opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

6. "Accountant's Report," when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefore shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the Contractor.

7. "Management," when used herein, means the chief executive officers, partners, principals, or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.

8. Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

54.2 The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.

54.3 Until the expiration of six years after final payment, the Owner, office of Inspector General, and the Deputy Commissioner of the Division of Capital Asset Management and Maintenance shall have the right to examine any books, documents, papers or records of the Contractor or of his Subcontractors that directly pertain to, and involve transactions relating to, the Contractor or his/her Subcontractors.

54.4 If the agreement is a contract as defined herein, the Contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the Owner, including in his description the date of the change and reasons

therefore, and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.

54.5 If the agreement is a contract as defined herein, the Contractor has filed a statement of management on internal accounting controls as set forth in Section 54.7 below prior to the execution of the contract.

54.6 If the agreement is a contract as defined herein, the Contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in Section 54.9 below.

54.7 Every Contractor awarded a contract shall file with the Owner a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:

1. transactions are executed in accordance with management's general and specific authorization;

2. transactions are recorded as necessary:

    i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and

    ii. to maintain accountability for assets;

3. access to assets is permitted only in accordance with management's general or specific authorization; and

4. the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

54.8 Every Contractor awarded a contract shall also file with the Owner a statement prepared and signed by an independent certified public accountant, stating that he has examined the statement of management on internal accounting controls, and expressing an opinion as to

1. whether the representations of management in response to this Section and Section 54.3 above are consistent with the result of management's evaluation of the system of internal accounting controls; and

2. whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

54.9 The Contractor shall annually file with the Division of Capital Asset Management and Maintenance during the term of the Contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant and a provide a copy of said

statement to the Owner. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report.

IN WITNESS THEREOF, the Contractor and the Owner have affixed their signatures on the dates written below.

APPROVED BY THE TOWN OF WINCHESTER:

_____ Date:_____

Beth Rudolph, P.E., Town Manager

APPROVED AS TO APPROPRIATION:

_____ Date:_____

Stacie Ward, CPA, Comptroller

SIGNED:

[Contractor[

_____ Date:_____

[Name]
[Title]

VOTE OF CORPORATION
AUTHORIZING EXECUTION OF CONTRACT

At a meeting of the Board of Directors of _____ duly called and held on _____, 20___, at which a quorum was present and acting throughout, the following vote was duly adopted.

VOTED: THAT_____ the _____ of the corporation, be and hereby is authorized to affix the corporate seal, sign and deliver in the name and behalf of the corporation, any Contract, Agreement or Obligation in this Corporation's name on its behalf.

I do hereby certify that the above is a true and correct copy of the record, that said Vote has not been amended or repealed, and is in full force and effect as of this date, and that _____ _____ is the duly elected _____ of this Corporation.

ATTEST:

_____

Clerk

(Corporate Seal)

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That we _____(Name of Contractor) a _____(Corporation, Partnership or Individual) hereinafter called "Principal" and _____ (Surety) of _____, State of _____ hereinafter called the "Surety," are held and firmly bound unto the Town of Winchester, Massachusetts, hereinafter called "Owner," in the sum of _____Dollars ($ _____ _____) in lawful money of the United States for the payment of which sum well and truly to be made, we bind ourselves, and heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the ___day of _____ , 20___ , a copy of which is hereto attached and made a part hereof for _____ _____ _____.

NOW, THEREFORE, if the Principal shall promptly make payments to all persons, firms, subcontractors and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extensions or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal, and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all telephone, electric, water or other utility service, or rental of equipment directly applicable to the contract, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulated and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder of the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that the amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed or recorded against such improvements, whether or not claim for the amount of such lien be presented under and against this bond.

In WITNESS WHEREOF, we hereto set out hands and seals, this the ____ day of _____, 20___.

ATTEST:

_____
Principal

_____
(Principal Secretary)

(SEAL)

By: _____(S)

_____
(Address – Zip Code)

_____
Witness as to Principal

_____
(Address – Zip Code)

ATTEST:

_____
Surety

_____
(Surety Secretary)

By: _____
Attorney-in-Fact

(SEAL)

_____
(Address – Zip Code)

_____
Witness as to Surety

_____
(Address – Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute Bond.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we _____(Name of Contractor) a _____ __(Corporation, Partnership or Individual) hereinafter called "Principal" and _____ (Surety) of _____, State of _____ hereinafter called the "Surety," are held and firmly bound unto the Town of Winchester, Massachusetts, hereinafter called "Owner," in the sum of _____ Dollars ($___ _____) in lawful money of the United States for the payment of which sum well and truly to be made, we bind ourselves, and heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the ___day of _____, 20__, a copy of which is hereto attached and made a part hereof for _____ _____ _____.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during the original term thereof, and any extension thereof which may be granted by the Owner, with or without notice to the surety, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, and make at its own cost and expense any and all defects and deficiencies in materials or workmanship which may appear in the work provided for in said contract within the period of one (1) year from the date of approval and acceptance of all work under said contract, then this obligation shall be void; otherwise to remain if full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulated and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation, on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

AND PROVIDED, however, that the Surety and Sureties, for value received, hereby stipulates and agrees to fully perform and complete the work mentioned and described in said contract and specifications, or cause said work to be performed and completed pursuant to the terms, conditions and covenants thereof, if for any cause, said Principal fails or neglects to fully perform and complete said work; and the Surety of Sureties further agree to commence said work of completion or cause said work of completion to commence within twenty (20) days notice thereof from the Owner and to complete same or cause same to be completed within twenty (20) days of the time allowed, said Principal, in said contract and specifications for the completion of said work.

AND PROVIDED, THAT THE SAID Surety and Sureties, for value received hereby further stipulate that should the Principal for any reason terminate the contract and have the contract terminated, the Owner shall have the right to complete the contract, under the direction of its own Engineer with all rules, regulations, clauses, etc., of the original contract and specifications in full effect.

PROVIDED FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any claimant hereunder, whose claim may be unsatisfied.

In WITNESS WHEREOF, we hereto set out hands and seals, this the ____ day of _____, 20___.

ATTEST:

_____
Principal

_____
(Principal Secretary)

(SEAL)

By: _____(S)

_____
(Address – Zip Code)

_____
Witness as to Principal

_____
(Address – Zip Code)

ATTEST:

_____
Surety

_____
(Surety Secretary)

By: _____
Attorney-in-Fact

(SEAL)

_____
(Address – Zip Code)

_____
Witness as to Surety

_____
(Address – Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute Bond.

WAGE RATE AND COMPLIANCE FORMS

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: Town of Winchester

Contract Number:

City/Town: WINCHESTER

Description of Work: Improvements to Shore Road Bridge, including improvements to roadway, sidewalk and bridge rail.

Job Location: Shore Road and Skillings Road, Winchester, MA

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.
- This annual update requirement is generally not applicable to 27F "rental of equipment" contracts. For such contracts, the prevailing wage rates issued by DLS shall remain in effect for the duration of the contract term. However, if the prevailing wage rate sheet issued does not contain wage rates for each year covered by the contract term, the Awarding Authority must request updated rate sheets from DLS and provide them to the contractor to ensure the correct rates are being paid throughout the duration of the contract. Additionally, if an Awarding Authority exercises an option to renew or extend the contract term, they must request updated rate sheets form DLS and provide them to the contractor.
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27.The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Issue Date: 04/23/2025 **Wage Request Number:** 20250422-066

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2024	$41.05	$14.91	$20.17	$0.00	$76.13
	06/01/2025	$42.05	$14.91	$20.17	$0.00	$77.13
	08/01/2025	$42.05	$15.41	$20.17	$0.00	$77.63
	12/01/2025	$42.05	$15.41	$21.78	$0.00	$79.24
	06/01/2026	$43.05	$15.41	$21.78	$0.00	$80.24
	08/01/2026	$43.05	$15.91	$21.78	$0.00	$80.74
	12/01/2026	$43.05	$15.91	$23.52	$0.00	$82.48
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2024	$40.88	$14.91	$20.17	$0.00	$75.96
	06/01/2025	$41.12	$14.91	$20.17	$0.00	$76.20
	08/01/2025	$41.12	$15.41	$20.17	$0.00	$76.70
	12/01/2025	$41.12	$15.41	$21.78	$0.00	$78.31
	06/01/2026	$43.12	$15.41	$21.78	$0.00	$80.31
	08/01/2026	$43.12	$15.91	$21.78	$0.00	$80.81
	12/01/2026	$43.12	$15.91	$23.52	$0.00	$82.55
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2024	$41.24	$14.91	$20.17	$0.00	$76.32
	06/01/2025	$42.24	$14.91	$20.17	$0.00	$77.32
	08/01/2025	$42.24	$15.41	$20.17	$0.00	$77.82
	12/01/2025	$42.24	$15.41	$21.78	$0.00	$79.43
	06/01/2026	$43.24	$15.41	$21.78	$0.00	$80.43
	08/01/2026	$43.24	$15.91	$21.78	$0.00	$80.93
	12/01/2026	$43.24	$15.91	$23.52	$0.00	$82.67
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 1)*	01/01/2024	$117.16	$10.08	$24.29	$0.00	$151.53
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR *LABORERS - ZONE 1*	12/01/2024	$46.85	$9.90	$18.90	$0.00	$75.65
	06/01/2025	$48.35	$9.90	$18.90	$0.00	$77.15
	12/01/2025	$49.85	$9.90	$18.90	$0.00	$78.65
	06/01/2026	$50.65	$9.90	$18.90	$0.00	$79.45
	12/01/2026	$52.90	$9.90	$18.90	$0.00	$81.70
	06/01/2027	$54.50	$9.90	$18.90	$0.00	$83.30
	12/01/2027	$56.10	$9.90	$18.90	$0.00	$84.90
	06/01/2028	$57.78	$9.90	$18.90	$0.00	$86.58
	12/01/2028	$59.45	$9.90	$18.90	$0.00	$88.25
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.95	$9.90	$18.90	$0.00	$75.75
	06/01/2025	$48.45	$9.90	$18.90	$0.00	$77.25
	12/01/2025	$49.95	$9.90	$18.90	$0.00	$78.75
	06/01/2026	$51.50	$9.90	$18.90	$0.00	$80.30
	12/01/2026	$53.00	$9.90	$18.90	$0.00	$81.80
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	12/01/2024	$42.80	$14.50	$11.05	$0.00	$68.35
	06/01/2025	$43.80	$14.50	$11.05	$0.00	$69.35
	12/01/2025	$44.80	$14.50	$11.05	$0.00	$70.35

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASPHALT RAKER *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.45	$9.90	$18.90	$0.00	$75.25
	06/01/2025	$47.95	$9.90	$18.90	$0.00	$76.75
	12/01/2025	$49.45	$9.90	$18.90	$0.00	$78.25
	06/01/2026	$51.00	$9.90	$18.90	$0.00	$79.80
	12/01/2026	$52.50	$9.90	$18.90	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 1*	12/01/2024	$46.85	$9.90	$18.90	$0.00	$75.65
	06/01/2025	$48.35	$9.90	$18.90	$0.00	$77.15
	12/01/2025	$49.85	$9.90	$18.90	$0.00	$78.65
	06/01/2026	$50.65	$9.90	$18.90	$0.00	$79.45
	12/01/2026	$52.90	$9.90	$18.90	$0.00	$81.70
	06/01/2027	$54.50	$9.90	$18.90	$0.00	$83.30
	12/01/2027	$56.10	$9.90	$18.90	$0.00	$84.90
	06/01/2028	$57.78	$9.90	$18.90	$0.00	$86.58
	12/01/2028	$59.45	$9.90	$18.90	$0.00	$88.25
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.95	$9.90	$18.90	$0.00	$75.75
	06/01/2025	$48.45	$9.90	$18.90	$0.00	$77.25
	12/01/2025	$49.95	$9.90	$18.90	$0.00	$78.75
	06/01/2026	$51.50	$9.90	$18.90	$0.00	$80.30
	12/01/2026	$53.00	$9.90	$18.90	$0.00	$81.80
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2024	$48.12	$7.07	$20.60	$0.00	$75.79

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$31.28	$7.07	$13.22	$0.00	$51.57
2	65	$31.28	$7.07	$13.22	$0.00	$51.57
3	70	$33.68	$7.07	$14.23	$0.00	$54.98
4	75	$36.09	$7.07	$15.24	$0.00	$58.40
5	80	$38.50	$7.07	$16.25	$0.00	$61.82
6	85	$40.90	$7.07	$17.28	$0.00	$65.25
7	90	$43.31	$7.07	$18.28	$0.00	$68.66
8	95	$45.71	$7.07	$19.32	$0.00	$72.10

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (WALTHAM)*	02/01/2025	$65.80	$11.49	$23.59	$0.00	$100.88
	08/01/2025	$67.95	$11.49	$23.59	$0.00	$103.03
	02/01/2026	$69.30	$11.49	$23.59	$0.00	$104.38
	08/01/2026	$71.50	$11.49	$23.59	$0.00	$106.58
	02/01/2027	$72.90	$11.49	$23.59	$0.00	$107.98

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 Waltham*

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$32.90	$11.49	$23.59	$0.00	$67.98
2	60	$39.48	$11.49	$23.59	$0.00	$74.56
3	70	$46.06	$11.49	$23.59	$0.00	$81.14
4	80	$52.64	$11.49	$23.59	$0.00	$87.72
5	90	$59.22	$11.49	$23.59	$0.00	$94.30

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$33.98	$11.49	$23.59	$0.00	$69.06
2	60	$40.77	$11.49	$23.59	$0.00	$75.85
3	70	$47.57	$11.49	$23.59	$0.00	$82.65
4	80	$54.36	$11.49	$23.59	$0.00	$89.44
5	90	$61.16	$11.49	$23.59	$0.00	$96.24

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$47.35	$9.90	$19.05	$0.00	$76.30
	06/01/2025	$48.85	$9.90	$19.05	$0.00	$77.80
	12/01/2025	$50.35	$9.90	$19.05	$0.00	$79.30
	06/01/2026	$51.90	$9.90	$19.05	$0.00	$80.85
	12/01/2026	$53.40	$9.90	$19.05	$0.00	$82.35
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$46.20	$9.90	$19.05	$0.00	$75.15
	06/01/2025	$47.70	$9.90	$19.05	$0.00	$76.65
	12/01/2025	$49.20	$9.90	$19.05	$0.00	$78.15
	06/01/2026	$50.75	$9.90	$19.05	$0.00	$79.70
	12/01/2026	$52.25	$9.90	$19.05	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$46.53	$9.90	$19.05	$0.00	$75.48
	06/01/2025	$48.03	$9.90	$19.05	$0.00	$76.98
	12/01/2025	$49.53	$9.90	$19.05	$0.00	$78.48
	06/01/2026	$51.08	$9.90	$19.05	$0.00	$80.03
	12/01/2026	$52.58	$9.90	$19.05	$0.00	$81.53
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARBIDE CORE DRILL OPERATOR	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
LABORERS - ZONE 1	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						
CARPENTER	03/01/2025	$49.62	$9.83	$19.97	$0.00	$79.42
CARPENTERS -ZONE 2 (Eastern Massachusetts)	09/01/2025	$50.87	$9.83	$19.97	$0.00	$80.67
	03/01/2026	$52.12	$9.83	$19.97	$0.00	$81.92
	09/01/2026	$53.37	$9.83	$19.97	$0.00	$83.17
	03/01/2027	$54.62	$9.83	$19.97	$0.00	$84.42

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$22.33	$9.83	$1.73	$0.00	$33.89
2	45	$22.33	$9.83	$1.73	$0.00	$33.89
3	55	$27.29	$9.83	$3.40	$0.00	$40.52
4	55	$27.29	$9.83	$3.40	$0.00	$40.52
5	70	$34.73	$9.83	$16.51	$0.00	$61.07
6	70	$34.73	$9.83	$16.51	$0.00	$61.07
7	80	$39.70	$9.83	$18.24	$0.00	$67.77
8	80	$39.70	$9.83	$18.24	$0.00	$67.77

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$22.89	$9.83	$1.73	$0.00	$34.45
2	45	$22.89	$9.83	$1.73	$0.00	$34.45
3	55	$27.98	$9.83	$3.40	$0.00	$41.21
4	55	$27.98	$9.83	$3.40	$0.00	$41.21
5	70	$35.61	$9.83	$16.51	$0.00	$61.95
6	70	$35.61	$9.83	$16.51	$0.00	$61.95
7	80	$40.70	$9.83	$18.24	$0.00	$68.77
8	80	$40.70	$9.83	$18.24	$0.00	$68.77

Notes:

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME	10/01/2024	$26.65	$7.02	$4.80	$0.00	$38.47
CARPENTERS-ZONE 3 (Wood Frame)	10/01/2025	$27.75	$7.02	$4.80	$0.00	$39.57
	10/01/2026	$28.85	$7.02	$4.80	$0.00	$40.67

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
All Aspects of New Wood Frame Work						

Apprentice - *CARPENTER (Wood Frame) - Zone 3*

Effective Date - 10/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$15.99	$7.02	$0.00	$0.00	$23.01
2	60	$15.99	$7.02	$0.00	$0.00	$23.01
3	65	$17.32	$7.02	$1.00	$0.00	$25.34
4	70	$18.66	$7.02	$1.00	$0.00	$26.68
5	75	$19.99	$7.02	$4.80	$0.00	$31.81
6	80	$21.32	$7.02	$4.80	$0.00	$33.14
7	85	$22.65	$7.02	$4.80	$0.00	$34.47
8	90	$23.99	$7.02	$4.80	$0.00	$35.81

Effective Date - 10/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$16.65	$7.02	$0.00	$0.00	$23.67
2	60	$16.65	$7.02	$0.00	$0.00	$23.67
3	65	$18.04	$7.02	$1.00	$0.00	$26.06
4	70	$19.43	$7.02	$1.00	$0.00	$27.45
5	75	$20.81	$7.02	$4.80	$0.00	$32.63
6	80	$22.20	$7.02	$4.80	$0.00	$34.02
7	85	$23.59	$7.02	$4.80	$0.00	$35.41
8	90	$24.98	$7.02	$4.80	$0.00	$36.80

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (WALTHAM)*	07/01/2024	$49.19	$13.35	$24.21	$1.80	$88.55

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CEMENT MASONRY/PLASTERING - Eastern Mass (Waltham)*

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.60	$13.35	$16.43	$0.00	$54.38
2	60	$29.51	$13.35	$19.21	$1.80	$63.87
3	65	$31.97	$13.35	$20.21	$1.80	$67.33
4	70	$34.43	$13.35	$21.21	$1.80	$70.79
5	75	$36.89	$13.35	$22.21	$1.80	$74.25
6	80	$39.35	$13.35	$23.21	$1.80	$77.71
7	90	$44.27	$13.35	$24.21	$1.80	$83.63

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$58.18	$15.55	$16.50	$0.00	$90.23
	06/01/2025	$59.51	$15.55	$16.50	$0.00	$91.56
	12/01/2025	$60.98	$15.55	$16.50	$0.00	$93.03
	06/01/2026	$62.31	$15.55	$16.50	$0.00	$94.36
	12/01/2026	$63.79	$15.55	$16.50	$0.00	$95.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$36.67	$15.55	$16.50	$0.00	$68.72
	06/01/2025	$37.52	$15.55	$16.50	$0.00	$69.57
	12/01/2025	$38.47	$15.55	$16.50	$0.00	$70.52
	06/01/2026	$39.33	$15.55	$16.50	$0.00	$71.38
	12/01/2026	$40.28	$15.55	$16.50	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$58.46	$9.95	$23.95	$0.00	$92.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$29.23	$9.95	$0.00	$0.00	$39.18
2	55	$32.15	$9.95	$6.66	$0.00	$48.76
3	60	$35.08	$9.95	$7.26	$0.00	$52.29
4	65	$38.00	$9.95	$7.87	$0.00	$55.82
5	70	$40.92	$9.95	$20.32	$0.00	$71.19
6	75	$43.85	$9.95	$20.93	$0.00	$74.73
7	80	$46.77	$9.95	$21.53	$0.00	$78.25
8	90	$52.61	$9.95	$22.74	$0.00	$85.30

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 1*	12/02/2024	$46.25	$9.90	$18.90	$0.00	$75.05
	06/02/2025	$47.75	$9.90	$18.90	$0.00	$76.55
	12/01/2025	$49.25	$9.90	$18.90	$0.00	$78.05
	06/01/2026	$50.80	$9.90	$18.90	$0.00	$79.60
	12/07/2026	$52.30	$9.90	$18.90	$0.00	$81.10
	06/07/2027	$53.90	$9.90	$18.90	$0.00	$82.70
	12/06/2027	$55.50	$9.90	$18.90	$0.00	$84.30
	06/05/2028	$57.18	$9.90	$18.90	$0.00	$85.98
	12/04/2028	$58.85	$9.90	$18.90	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 1*	12/02/2024	$47.25	$9.90	$18.90	$0.00	$76.05
	06/02/2025	$48.75	$9.90	$18.90	$0.00	$77.55
	12/01/2025	$50.25	$9.90	$18.90	$0.00	$79.05
	06/01/2026	$51.80	$9.90	$18.90	$0.00	$80.60
	12/07/2026	$53.30	$9.90	$18.90	$0.00	$82.10
	06/07/2027	$54.90	$9.90	$18.90	$0.00	$83.70
	12/06/2027	$56.50	$9.90	$18.90	$0.00	$85.30
	06/05/2028	$58.18	$9.90	$18.90	$0.00	$86.98
	12/04/2028	$59.85	$9.90	$18.90	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS *LABORERS - ZONE 1*	12/02/2024	$47.00	$9.90	$18.90	$0.00	$75.80
	06/02/2025	$48.50	$9.90	$18.90	$0.00	$77.30
	12/01/2025	$50.00	$9.90	$18.90	$0.00	$78.80
	06/01/2026	$51.55	$9.90	$18.90	$0.00	$80.35
	12/07/2026	$53.05	$9.90	$18.90	$0.00	$81.85
	06/07/2027	$54.65	$9.90	$18.90	$0.00	$83.45
	12/06/2027	$56.25	$9.90	$18.90	$0.00	$85.05
	06/05/2028	$57.93	$9.90	$18.90	$0.00	$86.73
	12/04/2028	$59.60	$9.90	$18.90	$0.00	$88.40

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 1*	12/02/2024	$47.25	$9.90	$18.90	$0.00	$76.05
	06/02/2025	$48.75	$9.90	$18.90	$0.00	$77.55
	12/01/2025	$50.25	$9.90	$18.90	$0.00	$79.05
	06/01/2026	$51.80	$9.90	$18.90	$0.00	$80.60
	12/07/2026	$53.30	$9.90	$18.90	$0.00	$82.10
	06/07/2027	$54.90	$9.90	$18.90	$0.00	$83.70
	12/06/2027	$56.50	$9.90	$18.90	$0.00	$85.30
	06/05/2028	$58.18	$9.90	$18.90	$0.00	$86.98
	12/04/2028	$59.85	$9.90	$18.90	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 1*	12/02/2024	$47.00	$9.90	$18.90	$0.00	$75.80
	06/02/2025	$48.50	$9.90	$18.90	$0.00	$77.30
	12/01/2025	$50.00	$9.90	$18.90	$0.00	$78.80
	06/01/2026	$51.55	$9.90	$18.90	$0.00	$80.35
	12/07/2026	$53.05	$9.90	$18.90	$0.00	$81.85
	06/07/2027	$54.65	$9.90	$18.90	$0.00	$83.45
	12/06/2027	$56.25	$9.90	$18.90	$0.00	$85.05
	06/05/2028	$57.93	$9.90	$18.90	$0.00	$86.73
	12/04/2028	$59.60	$9.90	$18.90	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER *LABORERS - ZONE 1*	12/02/2024	$46.25	$9.90	$18.90	$0.00	$75.05
	06/02/2025	$47.75	$9.90	$18.90	$0.00	$76.55
	12/01/2025	$49.25	$9.90	$18.90	$0.00	$78.05
	06/01/2026	$50.80	$9.90	$18.90	$0.00	$79.60
	12/07/2026	$52.30	$9.90	$18.90	$0.00	$81.10
	06/07/2027	$53.90	$9.90	$18.90	$0.00	$82.70
	12/06/2027	$55.50	$9.90	$18.90	$0.00	$84.30
	06/05/2028	$57.18	$9.90	$18.90	$0.00	$85.98
	12/04/2028	$58.85	$9.90	$18.90	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$78.11	$10.08	$21.66	$0.00	$109.85
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Diver wage 70/80/90 2A $69.83, 3A $91.79,4A $102.14 Total Rate						
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$55.79	$10.08	$24.29	$0.00	$90.16
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Piledriver wage 70/80/90 2A $54.20, 3A $73.93,4A $82.05 Total Rate						
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$83.69	$10.08	$24.29	$0.00	$118.06
For apprentice rates see "Apprentice- PILE DRIVER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2024	$117.16	$10.08	$24.29	$0.00	$151.53
DRAWBRIDGE OPERATOR (Construction) *DRAWBRIDGE - SEIU LOCAL 888*	07/01/2020	$26.77	$6.67	$3.93	$0.16	$37.53
ELECTRICIAN *ELECTRICIANS LOCAL 103*	03/01/2025	$64.26	$13.00	$23.03	$0.00	$100.29
	09/01/2025	$66.17	$13.00	$23.09	$0.00	$102.26
	03/01/2026	$67.37	$13.00	$23.12	$0.00	$103.49
	09/01/2026	$69.28	$13.00	$23.18	$0.00	$105.46
	03/01/2027	$70.47	$13.00	$23.21	$0.00	$106.68
	09/01/2027	$72.39	$13.00	$23.27	$0.00	$108.66
	03/01/2028	$73.59	$13.00	$23.31	$0.00	$109.90

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$25.70	$13.00	$0.77	$0.00	$39.47
2	40	$25.70	$13.00	$0.77	$0.00	$39.47
3	45	$28.92	$13.00	$17.17	$0.00	$59.09
4	45	$28.92	$13.00	$17.17	$0.00	$59.09
5	50	$32.13	$13.00	$17.70	$0.00	$62.83
6	55	$35.34	$13.00	$18.24	$0.00	$66.58
7	60	$38.56	$13.00	$18.77	$0.00	$70.33
8	65	$41.77	$13.00	$19.30	$0.00	$74.07
9	70	$44.98	$13.00	$19.83	$0.00	$77.81
10	75	$48.20	$13.00	$20.37	$0.00	$81.57

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$26.47	$13.00	$0.79	$0.00	$40.26
2	40	$26.47	$13.00	$0.79	$0.00	$40.26
3	45	$29.78	$13.00	$17.19	$0.00	$59.97
4	45	$29.78	$13.00	$17.19	$0.00	$59.97
5	50	$33.09	$13.00	$17.73	$0.00	$63.82
6	55	$36.39	$13.00	$18.27	$0.00	$67.66
7	60	$39.70	$13.00	$18.80	$0.00	$71.50
8	65	$43.01	$13.00	$19.34	$0.00	$75.35
9	70	$46.32	$13.00	$19.87	$0.00	$79.19
10	75	$49.63	$13.00	$20.41	$0.00	$83.04

Notes: :

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2022	$65.62	$16.03	$20.21	$0.00	$101.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$32.81	$16.03	$0.00	$0.00	$48.84
2	55	$36.09	$16.03	$20.21	$0.00	$72.33
3	65	$42.65	$16.03	$20.21	$0.00	$78.89
4	70	$45.93	$16.03	$20.21	$0.00	$82.17
5	80	$52.50	$16.03	$20.21	$0.00	$88.74

Notes:
Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2022	$45.93	$16.03	$20.21	$0.00	$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.45	$9.90	$18.90	$0.00	$75.25
	06/01/2025	$47.95	$9.90	$18.90	$0.00	$76.75
	12/01/2025	$49.45	$9.90	$18.90	$0.00	$78.25
	06/01/2026	$51.00	$9.90	$18.90	$0.00	$79.80
	12/01/2026	$52.50	$9.90	$18.90	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2024	$51.78	$15.30	$16.40	$0.00	$83.48
	05/01/2025	$53.22	$15.30	$16.40	$0.00	$84.92
	11/01/2025	$54.51	$15.30	$16.40	$0.00	$86.21
	05/01/2026	$55.95	$15.30	$16.40	$0.00	$87.65
	11/01/2026	$57.24	$15.30	$16.40	$0.00	$88.94
	05/01/2027	$58.67	$15.30	$16.40	$0.00	$90.37
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2024	$53.37	$15.30	$16.40	$0.00	$85.07
	05/01/2025	$54.82	$15.30	$16.40	$0.00	$86.52
	11/01/2025	$56.12	$15.30	$16.40	$0.00	$87.82
	05/01/2026	$57.57	$15.30	$16.40	$0.00	$89.27
	11/01/2026	$58.87	$15.30	$16.40	$0.00	$90.57
	05/01/2027	$60.32	$15.30	$16.40	$0.00	$92.02
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2024	$25.37	$15.30	$16.40	$0.00	$57.07
	05/01/2025	$26.22	$15.30	$16.40	$0.00	$57.92
	11/01/2025	$26.98	$15.30	$16.40	$0.00	$58.68
	05/01/2026	$27.83	$15.30	$16.40	$0.00	$59.53
	11/01/2026	$28.59	$15.30	$16.40	$0.00	$60.29
	05/01/2027	$29.44	$15.30	$16.40	$0.00	$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 103*	03/01/2025	$64.26	$13.00	$23.03	$0.00	$100.29
	09/01/2025	$66.17	$13.00	$23.09	$0.00	$102.26
	03/01/2026	$67.37	$13.00	$23.12	$0.00	$103.49
	09/01/2026	$69.28	$13.00	$23.18	$0.00	$105.46
	03/01/2027	$70.47	$13.00	$23.21	$0.00	$106.68
	09/01/2027	$72.39	$13.00	$23.27	$0.00	$108.66
	03/01/2028	$73.59	$13.00	$23.31	$0.00	$109.90
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING*ELECTRICIANS LOCAL 103*	03/01/2025	$51.41	$13.00	$20.90	$0.00	$85.31
	09/01/2025	$52.94	$13.00	$20.95	$0.00	$86.89
	03/01/2026	$53.90	$13.00	$20.98	$0.00	$87.88
	09/01/2026	$55.42	$13.00	$21.02	$0.00	$89.44
	03/01/2027	$56.38	$13.00	$21.05	$0.00	$90.43
	09/01/2027	$57.91	$13.00	$21.10	$0.00	$92.01
	03/01/2028	$58.87	$13.00	$21.13	$0.00	$93.00
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$45.96	$15.55	$16.50	$0.00	$78.01
	06/01/2025	$47.02	$15.55	$16.50	$0.00	$79.07
	12/01/2025	$48.19	$15.55	$16.50	$0.00	$80.24
	06/01/2026	$49.25	$15.55	$16.50	$0.00	$81.30
	12/01/2026	$50.43	$15.55	$16.50	$0.00	$82.48
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$27.01	$9.90	$18.90	$0.00	$55.81
	06/01/2025	$28.09	$9.90	$18.90	$0.00	$56.89
	12/01/2025	$28.09	$9.90	$18.90	$0.00	$56.89
	06/01/2026	$29.21	$9.90	$18.90	$0.00	$58.01
	12/01/2026	$29.21	$9.90	$18.90	$0.00	$58.01
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE I*	03/01/2025	$57.73	$8.83	$20.27	$0.00	$86.83
	09/01/2025	$59.23	$8.83	$20.27	$0.00	$88.33
	03/01/2026	$60.73	$8.83	$20.27	$0.00	$89.83
	09/01/2026	$62.23	$8.83	$20.27	$0.00	$91.33
	03/01/2027	$63.73	$8.83	$20.27	$0.00	$92.83

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *FLOORCOVERER - Local 2168 Zone I*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$25.98	$8.83	$1.76	$0.00	$36.57
2	45	$25.98	$8.83	$1.76	$0.00	$36.57
3	55	$31.75	$8.83	$3.52	$0.00	$44.10
4	55	$31.75	$8.83	$3.52	$0.00	$44.10
5	70	$40.41	$8.83	$16.75	$0.00	$65.99
6	70	$40.41	$8.83	$16.75	$0.00	$65.99
7	80	$46.18	$8.83	$18.51	$0.00	$73.52
8	80	$46.18	$8.83	$18.51	$0.00	$73.52

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$26.65	$8.83	$1.76	$0.00	$37.24
2	45	$26.65	$8.83	$1.76	$0.00	$37.24
3	55	$32.58	$8.83	$3.52	$0.00	$44.93
4	55	$32.58	$8.83	$3.52	$0.00	$44.93
5	70	$41.46	$8.83	$16.75	$0.00	$67.04
6	70	$41.46	$8.83	$16.75	$0.00	$67.04
7	80	$47.38	$8.83	$18.51	$0.00	$74.72
8	80	$47.38	$8.83	$18.51	$0.00	$74.72

Notes: Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$36.67	$15.55	$16.50	$0.00	$68.72
	06/01/2025	$37.52	$15.55	$16.50	$0.00	$69.57
	12/01/2025	$38.47	$15.55	$16.50	$0.00	$70.52
	06/01/2026	$39.33	$15.55	$16.50	$0.00	$71.38
	12/01/2026	$40.28	$15.55	$16.50	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 35 (ZONE 2)*	01/01/2025	$47.96	$9.95	$23.95	$0.00	$81.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *GLAZIER - Local 35 Zone 2*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.98	$9.95	$0.00	$0.00	$33.93
2	55	$26.38	$9.95	$6.66	$0.00	$42.99
3	60	$28.78	$9.95	$7.26	$0.00	$45.99
4	65	$31.17	$9.95	$7.87	$0.00	$48.99
5	70	$33.57	$9.95	$20.32	$0.00	$63.84
6	75	$35.97	$9.95	$20.93	$0.00	$66.85
7	80	$38.37	$9.95	$21.53	$0.00	$69.85
8	90	$43.16	$9.95	$22.74	$0.00	$75.85

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$31.37	$0.00	$0.00	$0.00	$31.37
2	60	$34.22	$15.55	$16.50	$0.00	$66.27
3	65	$37.07	$15.55	$16.50	$0.00	$69.12
4	70	$39.92	$15.55	$16.50	$0.00	$71.97
5	75	$42.77	$15.55	$16.50	$0.00	$74.82
6	80	$45.62	$15.55	$16.50	$0.00	$77.67
7	85	$48.48	$15.55	$16.50	$0.00	$80.53
8	90	$51.33	$15.55	$16.50	$0.00	$83.38

Effective Date - 06/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$32.08	$0.00	$0.00	$0.00	$32.08
2	60	$35.00	$15.55	$16.50	$0.00	$67.05
3	65	$37.91	$15.55	$16.50	$0.00	$69.96
4	70	$40.83	$15.55	$16.50	$0.00	$72.88
5	75	$43.75	$15.55	$16.50	$0.00	$75.80
6	80	$46.66	$15.55	$16.50	$0.00	$78.71
7	85	$49.58	$15.55	$16.50	$0.00	$81.63
8	90	$52.50	$15.55	$16.50	$0.00	$84.55

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2025	$59.13	$14.91	$28.27	$2.98	$105.29
	08/01/2025	$60.98	$14.91	$28.27	$2.98	$107.14
	02/01/2026	$62.93	$14.91	$28.27	$2.98	$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 103*	03/01/2025	$64.26	$13.00	$23.03	$0.00	$100.29
	09/01/2025	$66.17	$13.00	$23.09	$0.00	$102.26
	03/01/2026	$67.37	$13.00	$23.12	$0.00	$103.49
	09/01/2026	$69.28	$13.00	$23.18	$0.00	$105.46
	03/01/2027	$70.47	$13.00	$23.21	$0.00	$106.68
	09/01/2027	$72.39	$13.00	$23.27	$0.00	$108.66
	03/01/2028	$73.59	$13.00	$23.31	$0.00	$109.90
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2025	$59.13	$14.91	$28.27	$2.98	$105.29
	08/01/2025	$60.98	$14.91	$28.27	$2.98	$107.14
	02/01/2026	$62.93	$14.91	$28.27	$2.98	$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PIPEFITTERS LOCAL 537*	03/01/2025	$68.88	$12.70	$21.80	$0.00	$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC MECHANIC *PIPEFITTERS LOCAL 537*	03/01/2025	$68.88	$12.70	$21.80	$0.00	$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS *LABORERS - ZONE 1*	12/01/2024	$46.85	$9.90	$18.90	$0.00	$75.65
	06/01/2025	$48.35	$9.90	$18.90	$0.00	$77.15
	12/01/2025	$49.85	$9.90	$18.90	$0.00	$78.65
	06/01/2026	$50.65	$9.90	$18.90	$0.00	$79.45
	12/01/2026	$52.90	$9.90	$18.90	$0.00	$81.70
	06/01/2027	$54.50	$9.90	$18.90	$0.00	$83.30
	12/01/2027	$56.10	$9.90	$18.90	$0.00	$84.90
	06/01/2028	$57.78	$9.90	$18.90	$0.00	$86.58
	12/01/2028	$59.45	$9.90	$18.90	$0.00	$88.25
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.95	$9.90	$18.90	$0.00	$75.75
	06/01/2025	$48.45	$9.90	$18.90	$0.00	$77.25
	12/01/2025	$49.95	$9.90	$18.90	$0.00	$78.75
	06/01/2026	$51.50	$9.90	$18.90	$0.00	$80.30
	12/01/2026	$53.00	$9.90	$18.90	$0.00	$81.80
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	09/01/2024	$56.92	$14.75	$19.61	$0.00	$91.28
	09/01/2025	$60.34	$14.75	$19.61	$0.00	$94.70
	09/01/2026	$63.76	$14.75	$19.61	$0.00	$98.12

Apprentice - *ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston*

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$28.46	$14.75	$14.32	$0.00	$57.53
2	60	$34.15	$14.75	$15.37	$0.00	$64.27
3	70	$39.84	$14.75	$16.43	$0.00	$71.02
4	80	$45.54	$14.75	$17.49	$0.00	$77.78

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$30.17	$14.75	$14.32	$0.00	$59.24
2	60	$36.20	$14.75	$15.37	$0.00	$66.32
3	70	$42.24	$14.75	$16.43	$0.00	$73.42
4	80	$48.27	$14.75	$17.49	$0.00	$80.51

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 7 (BOSTON AREA)*	03/16/2024	$53.97	$8.35	$26.70	$0.00	$89.02

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 7 Boston*

Effective Date - 03/16/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$32.38	$8.35	$26.70	$0.00	$67.43
2	70	$37.78	$8.35	$26.70	$0.00	$72.83
3	75	$40.48	$8.35	$26.70	$0.00	$75.53
4	80	$43.18	$8.35	$26.70	$0.00	$78.23
5	85	$45.87	$8.35	$26.70	$0.00	$80.92
6	90	$48.57	$8.35	$26.70	$0.00	$83.62

Notes:

Apprentice to Journeyworker Ratio:1:4

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 1*	12/01/2024	$46.10	$9.90	$18.90	$0.00	$74.90
	06/01/2025	$47.60	$9.90	$18.90	$0.00	$76.40
	12/01/2025	$49.10	$9.90	$18.90	$0.00	$77.90
	06/01/2026	$50.65	$9.90	$18.90	$0.00	$79.45
	12/01/2026	$52.15	$9.90	$18.90	$0.00	$80.95
	06/01/2027	$53.75	$9.90	$18.90	$0.00	$82.55
	12/01/2027	$55.35	$9.90	$18.90	$0.00	$84.15
	06/01/2028	$57.03	$9.90	$18.90	$0.00	$85.83
	12/01/2028	$58.70	$9.90	$18.90	$0.00	$87.50

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LABORER - Zone 1*

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$27.66	$9.90	$18.90	$0.00	$56.46
2	70	$32.27	$9.90	$18.90	$0.00	$61.07
3	80	$36.88	$9.90	$18.90	$0.00	$65.68
4	90	$41.49	$9.90	$18.90	$0.00	$70.29

Effective Date - 06/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$28.56	$9.90	$18.90	$0.00	$57.36
2	70	$33.32	$9.90	$18.90	$0.00	$62.12
3	80	$38.08	$9.90	$18.90	$0.00	$66.88
4	90	$42.84	$9.90	$18.90	$0.00	$71.64

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.20	$9.90	$18.90	$0.00	$75.00
	06/01/2025	$47.70	$9.90	$18.90	$0.00	$76.50
	12/01/2025	$49.20	$9.90	$18.90	$0.00	$78.00
	06/01/2026	$50.75	$9.90	$18.90	$0.00	$79.55
	12/01/2026	$52.25	$9.90	$18.90	$0.00	$81.05

Apprentice - *LABORER (Heavy & Highway) - Zone 1*

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$27.72	$9.90	$18.90	$0.00	$56.52
2	70	$32.34	$9.90	$18.90	$0.00	$61.14
3	80	$36.96	$9.90	$18.90	$0.00	$65.76
4	90	$41.58	$9.90	$18.90	$0.00	$70.38

Effective Date - 06/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$28.62	$9.65	$18.90	$0.00	$57.17
2	70	$33.39	$9.65	$18.90	$0.00	$61.94
3	80	$38.16	$9.65	$18.90	$0.00	$66.71
4	90	$42.93	$9.65	$18.90	$0.00	$71.48

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER *LABORERS - ZONE 1*	12/01/2024	$46.10	$9.90	$18.90	$0.00	$74.90
	06/01/2025	$47.60	$9.90	$18.90	$0.00	$76.40
	12/01/2025	$49.10	$9.90	$18.90	$0.00	$77.90
	06/01/2026	$50.65	$9.90	$18.90	$0.00	$79.45
	12/01/2026	$52.15	$9.90	$18.90	$0.00	$80.95
	06/01/2027	$53.75	$9.90	$18.90	$0.00	$82.55
	12/01/2027	$55.35	$9.90	$18.90	$0.00	$84.15
	06/01/2028	$57.03	$9.90	$18.90	$0.00	$85.83
	12/01/2028	$58.70	$9.90	$18.90	$0.00	$87.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 1*	12/01/2024	$46.10	$9.90	$18.90	$0.00	$74.90
	06/01/2025	$47.60	$9.90	$18.90	$0.00	$76.40
	12/01/2025	$49.10	$9.90	$18.90	$0.00	$77.90
	06/01/2026	$50.65	$9.90	$18.90	$0.00	$79.45
	12/01/2026	$52.15	$9.90	$18.90	$0.00	$80.95
	06/01/2027	$53.75	$9.90	$18.90	$0.00	$82.55
	12/01/2027	$55.35	$9.90	$18.90	$0.00	$84.15
	06/01/2028	$57.03	$9.90	$18.90	$0.00	$85.83
	12/01/2028	$58.70	$9.90	$18.90	$0.00	$87.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 1*	12/02/2024	$46.25	$9.90	$18.90	$0.00	$75.05
	06/02/2025	$47.75	$9.90	$18.90	$0.00	$76.55
	12/01/2025	$49.25	$9.90	$18.90	$0.00	$78.05
	06/01/2026	$50.80	$9.90	$18.90	$0.00	$79.60
	12/07/2026	$52.30	$9.90	$18.90	$0.00	$81.10
	06/07/2027	$53.90	$9.90	$18.90	$0.00	$82.70
	12/06/2027	$55.50	$9.90	$18.90	$0.00	$84.30
	06/05/2028	$57.18	$9.90	$18.90	$0.00	$85.98
	12/04/2028	$58.85	$9.90	$18.90	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.45	$9.90	$18.90	$0.00	$75.25
	06/01/2025	$47.95	$9.90	$18.90	$0.00	$76.75
	12/01/2025	$49.45	$9.90	$18.90	$0.00	$78.25
	06/01/2026	$51.00	$9.90	$18.90	$0.00	$79.80
	12/01/2026	$52.50	$9.90	$18.90	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 1*	12/01/2024	$46.10	$9.90	$18.90	$0.00	$74.90
	06/01/2025	$47.60	$9.90	$18.90	$0.00	$76.40
	12/01/2025	$49.10	$9.90	$18.90	$0.00	$77.90
	06/01/2026	$50.65	$9.90	$18.90	$0.00	$79.45
	12/01/2026	$52.15	$9.90	$18.90	$0.00	$80.95
	06/01/2027	$53.75	$9.90	$18.90	$0.00	$82.55
	12/01/2027	$55.35	$9.90	$18.90	$0.00	$84.15
	06/01/2028	$57.03	$9.90	$18.90	$0.00	$85.83
	12/01/2028	$58.70	$9.90	$18.90	$0.00	$87.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 1*	12/01/2024	$46.10	$9.90	$18.90	$0.00	$74.90
	06/01/2025	$47.60	$9.90	$18.90	$0.00	$76.40
	12/01/2025	$49.10	$9.90	$18.90	$0.00	$77.90
	06/01/2026	$50.65	$9.90	$18.90	$0.00	$79.45
	12/01/2026	$52.15	$9.90	$18.90	$0.00	$80.95
	06/01/2027	$53.75	$9.90	$18.90	$0.00	$82.55
	12/01/2027	$55.35	$9.90	$18.90	$0.00	$84.15
	06/01/2028	$57.03	$9.90	$18.90	$0.00	$85.83
	12/01/2028	$58.70	$9.90	$18.90	$0.00	$87.50
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.45	$9.90	$18.90	$0.00	$75.25
	06/01/2025	$47.95	$9.90	$18.90	$0.00	$76.75
	12/01/2025	$49.45	$9.90	$18.90	$0.00	$78.25
	06/01/2026	$51.00	$9.90	$18.90	$0.00	$79.80
	12/01/2026	$52.50	$9.90	$18.90	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2025	$50.36	$11.49	$21.62	$0.00	$83.47
	08/01/2025	$52.08	$11.49	$21.62	$0.00	$85.19
	02/01/2026	$53.16	$11.49	$21.62	$0.00	$86.27
	08/01/2026	$54.92	$11.49	$21.62	$0.00	$88.03
	02/01/2027	$56.04	$11.49	$21.62	$0.00	$89.15

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE & TILE FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.18	$11.49	$21.62	$0.00	$58.29
2	60	$30.22	$11.49	$21.62	$0.00	$63.33
3	70	$35.25	$11.49	$21.62	$0.00	$68.36
4	80	$40.29	$11.49	$21.62	$0.00	$73.40
5	90	$45.32	$11.49	$21.62	$0.00	$78.43

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.04	$11.49	$21.62	$0.00	$59.15
2	60	$31.25	$11.49	$21.62	$0.00	$64.36
3	70	$36.46	$11.49	$21.62	$0.00	$69.57
4	80	$41.66	$11.49	$21.62	$0.00	$74.77
5	90	$46.87	$11.49	$21.62	$0.00	$79.98

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2025	$65.82	$11.49	$23.56	$0.00	$100.87
	08/01/2025	$67.97	$11.49	$23.56	$0.00	$103.02
	02/01/2026	$69.32	$11.49	$23.56	$0.00	$104.37
	08/01/2026	$71.52	$11.49	$23.56	$0.00	$106.57
	02/01/2027	$72.92	$11.49	$23.56	$0.00	$107.97

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile*

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$32.91	$11.49	$23.56	$0.00	$67.96
2	60	$39.49	$11.49	$23.56	$0.00	$74.54
3	70	$46.07	$11.49	$23.56	$0.00	$81.12
4	80	$52.66	$11.49	$23.56	$0.00	$87.71
5	90	$59.24	$11.49	$23.56	$0.00	$94.29

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$33.99	$11.49	$23.56	$0.00	$69.04
2	60	$40.78	$11.49	$23.56	$0.00	$75.83
3	70	$47.58	$11.49	$23.56	$0.00	$82.63
4	80	$54.38	$11.49	$23.56	$0.00	$89.43
5	90	$61.17	$11.49	$23.56	$0.00	$96.22

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1) *MILLWRIGHTS LOCAL 1121 - Zone 1*	01/06/2025	$50.53	$10.08	$21.72	$0.00	$82.33
	01/05/2026	$53.03	$10.08	$21.72	$0.00	$84.83

Apprentice - *MILLWRIGHT - Local 1121 Zone 1*

Effective Date - 01/06/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$27.79	$10.08	$5.64	$0.00	$43.51
2	65	$32.84	$10.08	$6.66	$0.00	$49.58
3	75	$37.90	$10.08	$19.16	$0.00	$67.14
4	85	$42.95	$10.08	$20.18	$0.00	$73.21

Effective Date - 01/05/2026

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$29.17	$10.08	$5.64	$0.00	$44.89
2	65	$34.47	$10.08	$6.66	$0.00	$51.21
3	75	$39.77	$10.08	$19.16	$0.00	$69.01
4	85	$45.08	$10.08	$20.18	$0.00	$75.34

Notes: Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 $5.72, Step 2 $6.66)
Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:4

MORTAR MIXER *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$25.37	$15.30	$16.40	$0.00	$57.07
	06/01/2025	$25.97	$15.30	$16.40	$0.00	$57.67
	12/01/2025	$26.63	$15.30	$16.40	$0.00	$58.33
	06/01/2026	$27.22	$15.30	$16.40	$0.00	$58.92
	12/01/2026	$27.89	$15.30	$16.40	$0.00	$59.59
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$31.08	$15.30	$16.40	$0.00	$62.78
	06/01/2025	$31.80	$15.30	$16.40	$0.00	$63.50
	12/01/2025	$32.60	$15.30	$16.40	$0.00	$64.30
	06/01/2026	$33.32	$15.30	$16.40	$0.00	$65.02
	12/01/2026	$34.12	$15.30	$16.40	$0.00	$65.82
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$58.46	$9.95	$23.95	$0.00	$92.36

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$29.23	$9.95	$0.00	$0.00	$39.18
2	55	$32.15	$9.95	$6.66	$0.00	$48.76
3	60	$35.08	$9.95	$7.26	$0.00	$52.29
4	65	$38.00	$9.95	$7.87	$0.00	$55.82
5	70	$40.92	$9.95	$20.32	$0.00	$71.19
6	75	$43.85	$9.95	$20.93	$0.00	$74.73
7	80	$46.77	$9.95	$21.53	$0.00	$78.25
8	90	$52.61	$9.95	$22.74	$0.00	$85.30

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$49.36	$9.95	$23.95	$0.00	$83.26

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - New*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.68	$9.95	$0.00	$0.00	$34.63
2	55	$27.15	$9.95	$6.66	$0.00	$43.76
3	60	$29.62	$9.95	$7.26	$0.00	$46.83
4	65	$32.08	$9.95	$7.87	$0.00	$49.90
5	70	$34.55	$9.95	$20.32	$0.00	$64.82
6	75	$37.02	$9.95	$20.93	$0.00	$67.90
7	80	$39.49	$9.95	$21.53	$0.00	$70.97
8	90	$44.42	$9.95	$22.74	$0.00	$77.11

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$47.42	$9.95	$23.95	$0.00	$81.32

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.71	$9.95	$0.00	$0.00	$33.66
2	55	$26.08	$9.95	$6.66	$0.00	$42.69
3	60	$28.45	$9.95	$7.26	$0.00	$45.66
4	65	$30.82	$9.95	$7.87	$0.00	$48.64
5	70	$33.19	$9.95	$20.32	$0.00	$63.46
6	75	$35.57	$9.95	$20.93	$0.00	$66.45
7	80	$37.94	$9.95	$21.53	$0.00	$69.42
8	90	$42.68	$9.95	$22.74	$0.00	$75.37

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$47.96	$9.95	$23.95	$0.00	$81.86

Apprentice - *PAINTER - Local 35 Zone 2 - BRUSH NEW*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.98	$9.95	$0.00	$0.00	$33.93
2	55	$26.38	$9.95	$6.66	$0.00	$42.99
3	60	$28.78	$9.95	$7.26	$0.00	$45.99
4	65	$31.17	$9.95	$7.87	$0.00	$48.99
5	70	$33.57	$9.95	$20.32	$0.00	$63.84
6	75	$35.97	$9.95	$20.93	$0.00	$66.85
7	80	$38.37	$9.95	$21.53	$0.00	$69.85
8	90	$43.16	$9.95	$22.74	$0.00	$75.85

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$46.02	$9.95	$23.95	$0.00	$79.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - BRUSH REPAINT*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.01	$9.95	$0.00	$0.00	$32.96
2	55	$25.31	$9.95	$6.66	$0.00	$41.92
3	60	$27.61	$9.95	$7.26	$0.00	$44.82
4	65	$29.91	$9.95	$7.87	$0.00	$47.73
5	70	$32.21	$9.95	$20.32	$0.00	$62.48
6	75	$34.52	$9.95	$20.93	$0.00	$65.40
7	80	$36.82	$9.95	$21.53	$0.00	$68.30
8	90	$41.42	$9.95	$22.74	$0.00	$74.11

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.20	$9.90	$18.90	$0.00	$75.00
	06/01/2025	$47.70	$9.90	$18.90	$0.00	$76.50
	12/01/2025	$49.20	$9.90	$18.90	$0.00	$78.00
	06/01/2026	$50.75	$9.90	$18.90	$0.00	$79.55
	12/01/2026	$52.25	$9.90	$18.90	$0.00	$81.05
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2024	$40.88	$14.91	$20.17	$0.00	$75.96
	06/01/2025	$41.88	$14.91	$20.17	$0.00	$76.96
	08/01/2025	$41.88	$15.41	$20.17	$0.00	$77.46
	12/01/2025	$41.88	$15.41	$21.78	$0.00	$79.07
	06/01/2026	$42.88	$15.41	$21.78	$0.00	$80.07
	08/01/2026	$42.88	$15.91	$21.78	$0.00	$80.57
	12/01/2026	$42.88	$15.91	$23.52	$0.00	$82.31
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$55.79	$10.08	$24.29	$0.00	$90.16
For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$55.79	$10.08	$24.29	$0.00	$90.16

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 1*

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$25.11	$10.08	$2.53	$0.00	$37.72
2	55	$30.68	$10.08	$5.07	$0.00	$45.83
3	70	$39.05	$10.08	$19.22	$0.00	$68.35
4	80	$44.63	$10.08	$21.76	$0.00	$76.47

Notes:

% Indentured BEFORE 8/1/20; 50/60/70/75/80/80/90/90

Step 1 $62.27/ 2 $67.84/3 $73.42/ 4 $76.21/ 5&6 $79.00/ 7&8 $84.58

Apprentice to Journeyworker Ratio:1:5

PIPEFITTER & STEAMFITTER *PIPEFITTERS LOCAL 537*	03/01/2025	$68.88	$12.70	$21.80	$0.00	$103.38

Apprentice - *PIPEFITTER - Local 537*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$27.55	$12.70	$9.05	$0.00	$49.30
2	45	$31.00	$12.70	$21.80	$0.00	$65.50
3	60	$41.33	$12.70	$21.80	$0.00	$75.83
4	70	$48.22	$12.70	$21.80	$0.00	$82.72
5	80	$55.10	$12.70	$21.80	$0.00	$89.60

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.

Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**

PIPELAYER *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.45	$9.90	$18.90	$0.00	$75.25
	06/01/2025	$47.95	$9.90	$18.90	$0.00	$76.75
	12/01/2025	$49.45	$9.90	$18.90	$0.00	$78.25
	06/01/2026	$51.00	$9.90	$18.90	$0.00	$79.80
	12/01/2026	$52.50	$9.90	$18.90	$0.00	$81.30

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PLUMBERS & GASFITTERS *PLUMBERS & GASFITTERS LOCAL 12*	03/02/2025	$69.84	$14.32	$20.31	$0.00	$104.47

Apprentice - *PLUMBER/GASFITTER - Local 12*

Effective Date - 03/02/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$24.44	$14.32	$7.41	$0.00	$46.17
2	40	$27.94	$14.32	$8.42	$0.00	$50.68
3	55	$38.41	$14.32	$11.47	$0.00	$64.20
4	65	$45.40	$14.32	$13.50	$0.00	$73.22
5	75	$52.38	$14.32	$15.53	$0.00	$82.23

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr

Step4 with lic$76.49 tot.rate, Step5 with lic. $85.32 tot. rate

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) *PIPEFITTERS LOCAL 537*	03/01/2025	$68.88	$12.70	$21.80	$0.00	$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.45	$9.90	$18.90	$0.00	$75.25
	06/01/2025	$47.95	$9.90	$18.90	$0.00	$76.75
	12/01/2025	$49.45	$9.90	$18.90	$0.00	$78.25
	06/01/2026	$51.00	$9.90	$18.90	$0.00	$79.80
	12/01/2026	$52.50	$9.90	$18.90	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
POWDERMAN & BLASTER *LABORERS - ZONE 1*	12/01/2024	$47.10	$9.90	$18.90	$0.00	$75.90
	06/01/2025	$48.60	$9.90	$18.90	$0.00	$77.40
	12/01/2025	$50.10	$9.90	$18.90	$0.00	$78.90
	06/01/2026	$51.65	$9.90	$18.90	$0.00	$80.45
	12/01/2026	$53.15	$9.90	$18.90	$0.00	$81.95
	06/01/2027	$54.75	$9.90	$18.90	$0.00	$83.55
	12/01/2027	$56.35	$9.90	$18.90	$0.00	$85.15
	06/01/2028	$58.03	$9.90	$18.90	$0.00	$86.83
	12/01/2028	$59.70	$9.90	$18.90	$0.00	$88.50
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWDERMAN & BLASTER (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$47.20	$9.90	$18.90	$0.00	$76.00
	06/01/2025	$48.70	$9.90	$18.90	$0.00	$77.50
	12/01/2025	$50.20	$9.90	$18.90	$0.00	$79.00
	06/01/2026	$51.75	$9.90	$18.90	$0.00	$80.55
	12/01/2026	$53.25	$9.90	$18.90	$0.00	$82.05
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$36.67	$15.55	$16.50	$0.00	$68.72
	06/01/2025	$37.52	$15.55	$16.50	$0.00	$69.57
	12/01/2025	$38.47	$15.55	$16.50	$0.00	$70.52
	06/01/2026	$39.33	$15.55	$16.50	$0.00	$71.38
	12/01/2026	$40.28	$15.55	$16.50	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER *TEAMSTERS 42 - J.G. MacLeallan (Wakefield)*	05/01/2024	$29.50	$12.00	$7.00	$0.00	$48.50
	05/01/2025	$30.00	$12.00	$7.00	$0.00	$49.00
	05/01/2026	$30.50	$12.00	$7.00	$0.00	$49.50
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	02/01/2025	$52.03	$13.28	$21.70	$0.00	$87.01
	08/01/2025	$53.53	$13.28	$21.70	$0.00	$88.51
	02/01/2026	$54.78	$13.28	$21.70	$0.00	$89.76

Apprentice - *ROOFER - Local 33*

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.02	$13.28	$15.55	$0.00	$54.85
2	60	$31.22	$13.28	$21.70	$0.00	$66.20
3	65	$33.82	$13.28	$21.70	$0.00	$68.80
4	75	$39.02	$13.28	$21.70	$0.00	$74.00
5	85	$44.23	$13.28	$21.70	$0.00	$79.21

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.77	$13.28	$15.55	$0.00	$55.60
2	60	$32.12	$13.28	$21.70	$0.00	$67.10
3	65	$34.79	$13.28	$21.70	$0.00	$69.77
4	75	$40.15	$13.28	$21.70	$0.00	$75.13
5	85	$45.50	$13.28	$21.70	$0.00	$80.48

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
(Hot Pitch Mechanics' receive $1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	02/01/2025	$52.28	$13.28	$21.70	$0.00	$87.26
	08/01/2025	$53.78	$13.28	$21.70	$0.00	$88.76
	02/01/2026	$55.03	$13.28	$21.70	$0.00	$90.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2025	$59.13	$14.91	$28.27	$2.98	$105.29
	08/01/2025	$60.98	$14.91	$28.27	$2.98	$107.14
	02/01/2026	$62.93	$14.91	$28.27	$2.98	$109.09

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SHEET METAL WORKER - Local 17-A*

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	$24.83	$14.91	$6.13	$0.00	$45.87
2	42	$24.83	$14.91	$6.13	$0.00	$45.87
3	47	$27.79	$14.91	$12.26	$1.62	$56.58
4	47	$27.79	$14.91	$12.26	$1.62	$56.58
5	52	$30.75	$14.91	$13.24	$1.74	$60.64
6	52	$30.75	$14.91	$13.49	$1.75	$60.90
7	60	$35.48	$14.91	$14.90	$1.93	$67.22
8	65	$38.43	$14.91	$15.88	$2.04	$71.26
9	75	$44.35	$14.91	$17.84	$2.28	$79.38
10	85	$50.26	$14.91	$19.30	$2.49	$86.96

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	$25.61	$14.91	$6.13	$0.00	$46.65
2	42	$25.61	$14.91	$6.13	$0.00	$46.65
3	47	$28.66	$14.91	$12.26	$1.62	$57.45
4	47	$28.66	$14.91	$12.26	$1.62	$57.45
5	52	$31.71	$14.91	$13.24	$1.74	$61.60
6	52	$31.71	$14.91	$13.49	$1.75	$61.86
7	60	$36.59	$14.91	$14.90	$1.93	$68.33
8	65	$39.64	$14.91	$15.88	$2.04	$72.47
9	75	$45.74	$14.91	$17.84	$2.28	$80.77
10	85	$51.83	$14.91	$19.30	$2.49	$88.53

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2024	$41.34	$14.91	$20.17	$0.00	$76.42
	06/01/2025	$42.34	$14.91	$20.17	$0.00	$77.42
	08/01/2025	$42.34	$15.41	$20.17	$0.00	$77.92
	12/01/2025	$42.34	$15.41	$21.78	$0.00	$79.53
	06/01/2026	$43.34	$15.41	$21.78	$0.00	$80.53
	08/01/2026	$43.34	$15.91	$21.78	$0.00	$81.03
	12/01/2026	$43.34	$15.91	$23.52	$0.00	$82.77

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2024	$41.63	$14.91	$20.17	$0.00	$76.71
	06/01/2025	$42.63	$14.91	$20.17	$0.00	$77.71
	08/01/2025	$42.63	$15.41	$20.17	$0.00	$78.21
	12/01/2025	$42.63	$15.41	$21.78	$0.00	$79.82
	06/01/2026	$43.63	$15.41	$21.78	$0.00	$80.82
	08/01/2026	$43.63	$15.91	$21.78	$0.00	$81.32
	12/01/2026	$43.63	$15.91	$23.52	$0.00	$83.06
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1*	03/01/2025	$72.14	$11.51	$23.80	$0.00	$107.45

Apprentice - *SPRINKLER FITTER - Local 550 (Section A) Zone 1*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$25.25	$11.51	$13.07	$0.00	$49.83
2	40	$28.86	$11.51	$13.90	$0.00	$54.27
3	45	$32.46	$11.51	$14.73	$0.00	$58.70
4	50	$36.07	$11.51	$15.55	$0.00	$63.13
5	55	$39.68	$11.51	$16.37	$0.00	$67.56
6	60	$43.28	$11.51	$17.20	$0.00	$71.99
7	65	$46.89	$11.51	$18.03	$0.00	$76.43
8	70	$50.50	$11.51	$18.85	$0.00	$80.86
9	75	$54.11	$11.51	$19.67	$0.00	$85.29
10	80	$57.71	$11.51	$20.50	$0.00	$89.72

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 103*	03/01/2025	$51.41	$13.00	$20.90	$0.00	$85.31
	09/01/2025	$52.94	$13.00	$20.95	$0.00	$86.89
	03/01/2026	$53.90	$13.00	$20.98	$0.00	$87.88
	09/01/2026	$55.42	$13.00	$21.02	$0.00	$89.44
	03/01/2027	$56.38	$13.00	$21.05	$0.00	$90.43
	09/01/2027	$57.91	$13.00	$21.10	$0.00	$92.01
	03/01/2028	$58.87	$13.00	$21.13	$0.00	$93.00

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 103*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$23.13	$13.00	$0.69	$0.00	$36.82
2	45	$23.13	$13.00	$0.69	$0.00	$36.82
3	50	$25.71	$13.00	$16.64	$0.00	$55.35
4	50	$25.71	$13.00	$16.64	$0.00	$55.35
5	55	$28.28	$13.00	$17.07	$0.00	$58.35
6	60	$30.85	$13.00	$17.50	$0.00	$61.35
7	65	$33.42	$13.00	$17.92	$0.00	$64.34
8	70	$35.99	$13.00	$18.35	$0.00	$67.34
9	75	$38.56	$13.00	$18.78	$0.00	$70.34
10	80	$41.13	$13.00	$19.19	$0.00	$73.32

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$23.82	$13.00	$0.71	$0.00	$37.53
2	45	$23.82	$13.00	$0.71	$0.00	$37.53
3	50	$26.47	$13.00	$16.66	$0.00	$56.13
4	50	$26.47	$13.00	$16.66	$0.00	$56.13
5	55	$29.12	$13.00	$17.09	$0.00	$59.21
6	60	$31.76	$13.00	$17.52	$0.00	$62.28
7	65	$34.41	$13.00	$17.95	$0.00	$65.36
8	70	$37.06	$13.00	$18.38	$0.00	$68.44
9	75	$39.71	$13.00	$18.81	$0.00	$71.52
10	80	$42.35	$13.00	$19.23	$0.00	$74.58

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2025	$64.74	$11.49	$23.59	$0.00	$99.82
	08/01/2025	$66.89	$11.49	$23.59	$0.00	$101.97
	02/01/2026	$68.24	$11.49	$23.59	$0.00	$103.32
	08/01/2026	$70.44	$11.49	$23.59	$0.00	$105.52
	02/01/2027	$71.84	$11.49	$23.59	$0.00	$106.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$32.37	$11.49	$23.59	$0.00	$67.45
2	60	$38.84	$11.49	$23.59	$0.00	$73.92
3	70	$45.32	$11.49	$23.59	$0.00	$80.40
4	80	$51.79	$11.49	$23.59	$0.00	$86.87
5	90	$58.27	$11.49	$23.59	$0.00	$93.35

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$33.45	$11.49	$23.59	$0.00	$68.53
2	60	$40.13	$11.49	$23.59	$0.00	$75.21
3	70	$46.82	$11.49	$23.59	$0.00	$81.90
4	80	$53.51	$11.49	$23.59	$0.00	$88.59
5	90	$60.20	$11.49	$23.59	$0.00	$95.28

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$50.20	$9.90	$19.05	$0.00	$79.15
	06/01/2025	$51.70	$9.90	$19.05	$0.00	$80.65
	12/01/2025	$53.20	$9.90	$19.05	$0.00	$82.15
	06/01/2026	$54.75	$9.90	$19.05	$0.00	$83.70
	12/01/2026	$56.25	$9.90	$19.05	$0.00	$85.20
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$46.32	$9.90	$19.05	$0.00	$75.27
	06/01/2025	$47.82	$9.90	$19.05	$0.00	$76.77
	12/01/2025	$49.32	$9.90	$19.05	$0.00	$78.27
	06/01/2026	$50.87	$9.90	$19.05	$0.00	$79.82
	12/01/2026	$52.37	$9.90	$19.05	$0.00	$81.32
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$46.20	$9.90	$19.05	$0.00	$75.15
	06/01/2025	$47.70	$9.90	$19.05	$0.00	$76.65
	12/01/2025	$49.20	$9.90	$19.05	$0.00	$78.15
	06/01/2026	$50.75	$9.90	$19.05	$0.00	$79.70
	12/01/2026	$52.25	$9.90	$19.05	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2024	$41.92	$14.91	$20.17	$0.00	$77.00
	06/01/2025	$42.92	$14.91	$20.17	$0.00	$78.00
	08/01/2025	$42.92	$15.41	$20.17	$0.00	$78.50
	12/01/2025	$42.92	$15.41	$21.78	$0.00	$80.11
	06/01/2026	$43.92	$15.41	$21.78	$0.00	$81.11
	08/01/2026	$43.92	$15.91	$21.78	$0.00	$81.61
	12/01/2026	$43.92	$15.91	$23.52	$0.00	$83.35
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)*	12/01/2024	$58.43	$9.90	$19.50	$0.00	$87.83
	06/01/2025	$59.93	$9.90	$19.50	$0.00	$89.33
	12/01/2025	$61.43	$9.90	$19.50	$0.00	$90.83
	06/01/2026	$62.98	$9.90	$19.50	$0.00	$92.38
	12/01/2026	$64.48	$9.90	$19.50	$0.00	$93.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)*	12/01/2024	$60.43	$9.90	$19.50	$0.00	$89.83
	06/01/2025	$61.93	$9.90	$19.50	$0.00	$91.33
	12/01/2025	$63.43	$9.90	$19.50	$0.00	$92.83
	06/01/2026	$64.98	$9.90	$19.50	$0.00	$94.38
	12/01/2026	$66.48	$9.90	$19.50	$0.00	$95.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)*	12/01/2024	$50.50	$9.90	$19.50	$0.00	$79.90
	06/01/2025	$52.00	$9.90	$19.50	$0.00	$81.40
	12/01/2025	$53.50	$9.90	$19.50	$0.00	$82.90
	06/01/2026	$55.05	$9.90	$19.50	$0.00	$84.45
	12/01/2026	$56.55	$9.90	$19.50	$0.00	$85.95
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)*	12/01/2024	$52.50	$9.90	$19.50	$0.00	$81.90
	06/01/2025	$54.00	$9.90	$19.50	$0.00	$83.40
	12/01/2025	$55.50	$9.90	$19.50	$0.00	$84.90
	06/01/2026	$57.05	$9.90	$19.50	$0.00	$86.45
	12/01/2026	$58.55	$9.90	$19.50	$0.00	$87.95
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2024	$41.34	$14.91	$20.17	$0.00	$76.42
	06/01/2025	$42.34	$14.91	$20.17	$0.00	$77.42
	08/01/2025	$42.34	$15.41	$20.17	$0.00	$77.92
	12/01/2025	$42.34	$15.41	$21.78	$0.00	$79.53
	06/01/2026	$43.34	$15.41	$21.78	$0.00	$80.53
	08/01/2026	$43.34	$15.91	$21.78	$0.00	$81.03
	12/01/2026	$43.34	$15.91	$23.52	$0.00	$82.77

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR *LABORERS - ZONE 1*	12/01/2024	$46.35	$9.90	$18.90	$0.00	$75.15
	06/01/2025	$47.85	$9.90	$18.90	$0.00	$76.65
	12/01/2025	$49.35	$9.90	$18.90	$0.00	$78.15
	06/01/2026	$50.90	$9.90	$18.90	$0.00	$79.70
	12/01/2026	$52.40	$9.90	$18.90	$0.00	$81.20
	06/01/2027	$54.00	$9.90	$18.90	$0.00	$82.80
	12/01/2027	$55.60	$9.90	$18.90	$0.00	$84.40
	06/01/2028	$57.28	$9.90	$18.90	$0.00	$86.08
	12/01/2028	$58.95	$9.90	$18.90	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) *LABORERS - ZONE 1 (HEAVY & HIGHWAY)*	12/01/2024	$46.45	$9.90	$18.90	$0.00	$75.25
	06/01/2025	$47.95	$9.90	$18.90	$0.00	$76.75
	12/01/2025	$49.45	$9.90	$18.90	$0.00	$78.25
	06/01/2026	$51.00	$9.90	$18.90	$0.00	$79.80
	12/01/2026	$52.50	$9.90	$18.90	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & GASFITTERS LOCAL 12*	03/02/2025	$69.84	$14.32	$20.31	$0.00	$104.47
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

Additional Apprentice Information:

All apprentices must be registered with the Division of Apprenticeship Training (DAS) in accordance with M.G.L. c. 23, §§ 11E-11L. Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the hourly prevailing wage rate established by the Commissioner under the provisions of M.G.L. c. 149, §§ 26-27D. Apprentice ratios are established by DAS pursuant to M.G.L. c. 23, §§ 11E-11L. Ratios are expressed as the allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified. The ratios listed herein have been taken from relevant private collective bargaining agreements (CBAs) and are provided for illustrative purposes only. They have not been independently verified as being accurate or continuing to be accurate. Parties having questions regarding what ratio to use should contact DAS.

TECHNICAL SPECIFICATION

WAGE RATE AND COMPLIANCE FORMS

TECHNICAL SPECIFICATION

SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.1 Description of the Work

A. The Town of Winchester's Shore Road Bridge Rehabilitation involves concrete repairs and safety improvements to the existing double barrel concrete culvert carrying Shore Road over the Aberjona River. The project includes roadway paving and removal and reconstruction/reconfiguration of the existing concrete walkways, replacement of the steel bridge railing, roadway reconstruction, selective invasive vegetation removal and landscaping.

1.2 Work Covered by Contract Documents

A. Project Identification: The name of the project is Shore Road Bridge Rehabilitation.

1. Project Location: Shore Road Bridge
   Shore Road, Winchester, MA 01890
2. Project Owner: Town of Winchester
   71 Mount Vernon St.
   Winchester, MA 01890

B. Design Engineer: The Contract Documents, dated April 2025, were prepared for the Project by VHB, 260 Arsenal Place #2, Watertown, MA 02472-4026.

C. Engineer: The Engineer for the purposes of the technical specifications shall be the Engineer designated by the Owner.

1.3 Existing Conditions

A. The site is bordered by the intersection of Shore Road and Skillings Road to the north, and a Town owned parking area and Winchester Riverwalk Sculpture Park to the South. Just upstream from the bridge is the location of the Aberjona Flood Mitigation Project completed (Project 6) at Ciarcia Field.

B. The location of the Project Site and the existing surface layout is shown on the Drawings.

1.4 Contractor's Scope of Work

A. General

1. This Section provides a brief general description of the technical scope of work for the Project. It is not intended to be a comprehensive description of all work required to complete the requirements of the Contract Documents. A more specific discussion of scope

of work as related to individual bid items is provided in Specification Section 01 22 00 – Unit Prices.

2. It is the intent of these Specifications to describe a fully complete Project to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result must be provided whether or not specifically called for at no additional cost to the Engineer or Owner.

B. Mobilization, Site Preparation, and Erosion and Sediment Control

1. Mobilization includes the work required to mobilize equipment, personnel, and materials to the Site and the following work:
    a. Preparation of submittals
    b. Obtaining required permits and approvals, if required
    c. Obtaining required payment and performance bonds
    d. Work incidental to the project but not covered under another bid item
2. Site Preparation activities required to prepare the work area for construction include:
    a. Construction of temporary access pads and staging areas
    b. Utility location and protection
    c. Provision and installation of security fencing and barricades as shown on the Drawings
    d. All other activities required by the Contractor to prepare the Site for construction activities

C. Erosion and Sediment Control

1. Provision and installation of erosion, sediment, and turbidity control measures as shown on the Drawings and as required by the Owner, Engineer, or issuing permit authority.

D. Demolition and Site Clearing

1. Any surface structures within the Work Area shown to be removed on the Drawings shall be demolished. This shall include removal and transportation of demolition debris for offsite disposal.
2. Removal of existing bridge rail.
3. Vegetation shall be removed from the Work Area as needed. This shall include removal of trees and shrubs, grubbing, and transportation and disposal of vegetation debris. All vegetation specified to be protected shall be protected by the Contractor. All vegetation specified to be replaced shall be replaced with similar vegetation of equal quality as approved by the Engineer.
4. Stockpiling and protection of items to be stored including riprap and vertical granite curbing.

5. Removal and disposal of items including existing, bridge railing, asphalt, and concrete.

E. Water Management

1. The Contractor is responsible for ensuring that the river diversion and dewatering system is sufficient to maintain a dry excavation area from surface, storm, and groundwater intrusion.

F. Traffic Management

1. Traffic controls shown on the Drawings are the minimum required. The Contractor shall submit a detailed traffic management plan to the Engineer and Town for approval prior to the start of work.
2. The Contractor shall establish traffic controls as necessary to complete the work and in accordance with all application regulations.
3. The Contractor shall arrange and provide all police details required by the Town of Winchester Police Department to be present at or adjacent to the site for traffic control purposes. The cost of the police details so required shall be borne by the Contractor and is included in the Contract Sum.

G. Excavation, Handling, and Loading

1. On-Site Management of Materials – Various onsite material management and processing steps may be required to complete the project. These may include, but are not limited to, the following:
    a. On Site Transportation
    b. Stockpiling of soil, sediment, and debris
    c. Loading of soil, sediment, and debris for off-site transportation
    d. Stockpiling of clean imported backfill material and supplies
2. Off-Site Management of Materials – Waste materials shall include all soil, sediments, trash, and debris excavated during the project. The Contractor shall transport by truck and dispose of soil and sediment generated that will not be reused during this project at appropriate off-site management facilities identified by the Contractor and approved by the Engineer.
3. Testing of Materials – Contractor shall be responsible for testing material as required by the receiving facility. Soil sampling, testing, analysis, and LSP services shall be provided by the Contractor at no additional cost to the Owner.

H. Alteration to Bridge Structure No. W-40-029 (2D8)

1. The proposed bridge improvements concrete repairs to the bridge deck and culvert walls, new concrete sidewalk and safety curb, new steel bridge railings and end treatment, waterproofing membrane and pavement.
2. The site improvements include selective removal of invasive vegetation, and new shrub plantings.

I. Transportation and Disposal

1. The Contractor shall transport and dispose of all excavated materials and debris to a waste management facility. Transportation and disposal shall be conducted in accordance with all applicable regulations.

J. Roadway Reconstruction

1. Full depth pavement reconstruction in the vicinity of the proposed bridge improvements.
2. Milling and resurfacing within the limits of work to drain towards the proposed stormwater inlets and avoid ponding.
3. Installation of highway guardrail beyond the bridge transitions.
4. Installation of concrete shared use path, safety curb, and granite curbing.
5. Installation of roadway traffic loop detectors.
6. Traffic striping and signage.

K. Site Restoration and Grading

1. Disturbed areas shall be graded to match the grading lines shown on the Drawings.
2. Disturbed areas shall be re-seeded, fertilized, watered, and protected as shown on the Drawings.
3. The Contractor shall restore all vegetated areas with a minimum of 6-inches of loam and seeded with the specified seed mix.
4. The Contractor shall install the plants as shown on the Drawings with specified plant schedule.
5. The Contractor is responsible for stabilizing and maintaining the site to achieve adequate vegetated coverage.

L. Demobilization and Site Cleanup

1. When construction and off-site disposal at the Site is complete, the Contractor shall remove the cofferdams and temporary facilities, clean the site, and demobilize from the Site.

M. Record Drawings

1. Provide as-built plan of field elevations, grades and inverts stamped by a Professional Land Surveyor (PLS), registered in Massachusetts.
2. Plan shall detail horizontal and vertical location of all internal utilities and appurtenances, concealed by finish materials.
3. Provide a copy of the marked-up design drawings kept by the Contractor.
4. Provide an electronic version of the as-built plan in AutoCAD® format.

1.5 Work Sequencing

A. In-water work is prohibited between April 1 and June 30 as required by permit conditions.

B. The road must remain open but may be closed for short durations to complete the work. Road closures shall be coordinated with the owner prior to any work. See traffic management plans for suggested sequencing.

1.6 Permits

A. The Contractor shall comply with all environmental permits issued in connection with this project, and any condition attached to these permits. These permits include the following, which are attached to the specifications:

1. Winchester Conservation Commission Order of Conditions DEP #346-598 and Winchester Wetlands Bylaw #598, dated 4/8/25
2. United States Army Corps of Engineers Section 404 Certification – Submission of the Self Verification Notification to USACE is pending

1.7 Reference Standards

A. References made to the bridge structure specification and related work shall conform to the 2025 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges.

B. All Construction signing, temporary traffic control devices, and roadside elements shall conform with the 2023 Manual on Uniform Traffic Control Devices (MUTCD) as amended, the latest revision of the American Association of State Highway and Transpiration Officials (AASHTO) Roadside Design Guide, the National Cooperative Highway Research Program (NCHR) 350, or the Manual of Assessing Safety Hardware (MASH).

1.8 Specification Formats and Conventions

A. Specification Format: The Specifications are organized into Divisions and Sections using 50-division format and CSI/CSC's "Master Format" numbering system.

B. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. The Contractor shall consult the specification summary at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

1.9 Description of Additive Alternative Items

A. Selective Vegetation Removal and Plantings

1. Where shown on the plans:

a. Invasive vines shall be removed by hand in the area located northwest of the proposed work.

b. No less than 10 native species of shrubs shall be planted in the area located northwest of the proposed work. Shrubs shall include:

(3) Sweet pepperbush (*Clethra alnifolia*)

(3) Grey dogwood (*Cornus racemosa*)

(4) Black chokeberry (*Photinia melanocarpa*)

PART 2 – PRODUCTS

(Not used)

PART 3 – EXECUTION

(Not used)

(END OF SECTION 01 11 00)

SECTION 01 14 00

WORK RESTRICTIONS

PART 1 – GENERAL

1.1 Contractor's Use of Premises

A. The Contractor shall confine all operations, including the storage of materials, to the designated areas of the Project Site as shown in the Drawings, or as otherwise approved in writing by the Engineer. The Contractor shall be responsible for arranging for, and paying the costs of, any necessary off-site storage. Any further use of the property must be approved in writing by the Engineer.

B. The Contractor's use of the premises shall be limited to the Work being performed under the Specifications and Drawings.

C. The Contractor shall be responsible for the security and safety of the Contractor's equipment and facilities. The Owner and the Engineer shall not be liable for loss or damage of Contractor's tools, vehicles, equipment, or materials, whatever the cause. Such loss or damage shall not be sufficient reason for changes in the Project Schedule.

D. The Contractor shall be responsible for any damage to roadways, facilities, trees, or structures on, or adjacent to, the Project Site due to negligence, carelessness, actions, errors, or omissions on the part of the Contractor.

1.2 Traffic Plan and Access Roads

A. The Contractor shall reference the Temporary Traffic Control Plans in the Plans. Road closure shall be kept to the minimum duration necessary to complete the work.

B. The Contractor shall provide any flaggers or police detail as needed to prevent impeded traffic flow on public streets at no additional cost to the Owner or Engineer.

C. The Contractor shall, at all times, provide for unimpeded access for emergency vehicles to the Project Site and nearby properties.

D. All traffic control devices shall be in place before any work can begin.

E. Contractor shall provide tracking pads or wheel wash facilities as needed to prevent the migration of soil or sediment from the site.

1.3 Parking

A. The Contractor shall park construction vehicles and construction equipment only within the project limit of work or in areas designated by the Engineer for such purpose.

B. Construction vehicle, equipment, and employee parking is prohibited on Swanton Street outside the project limit of work, unless approved by the Engineer for such purpose.

C. Vehicles shall not be parked in any locations where they impede traffic or access to areas where Work is being conducted by others.

1.4 **Work Hours**

A. Normal Work Hours shall be from no earlier than 7:00 A.M. to no later than 5:00 P.M., Monday through Friday, or as otherwise approved in advance in writing by the Engineer, and subject to availability of adequate daylight to safely perform the Work. The Contractor shall submit a Staffing Plan detailing work hours and shift requirements as part of the detailed Work Plan.

B. Work hours established by any ordinance, Law, or Regulation shall supersede the requirements of this Specifications Section.

C. The Contractor shall conduct all Work between 7:00 A.M. to 3:00 P.M. when there is adequate light so that the Work can be conducted safely and the Engineer can effectively observe the Work, or the Contractor shall furnish adequate lighting for activities conducted by prior written approval of the Engineer and Owner. The Contractor shall provide adequate lighting at all times, as deemed necessary by the Engineer for safety reasons. However, the Engineer shall not require additional lighting if the Contractor can demonstrate that light levels in the Work area meet or exceed OSHA Regulations.

D. The Contractor may, with Engineer's approval, conduct regular equipment maintenance during hours outside of the Normal Work Hours defined in this Section.

E. Any variation from Normal Work Hours or Work on Saturdays, Sundays, or Holidays shall be subject to approval by the Engineer and Owner. Any request for change must be made to the Engineer no less than 48 hours in advance.

F. Emergency repairs of equipment may be performed, with Engineer's approval, outside of Normal Work Hours, without 48-hour notice.

1.5 **Restrictions on Noise, Dust, and Odor Emissions**

A. The Contractor is responsible for conducting all Work in accordance with Laws and Regulations concerning noise or sound levels. The Contractor will be required to minimize noise after hours to the extent practicable and this may entail achieving noise levels at the perimeter which are more stringent than local ordinances.

B. The Contractor is responsible for conducting all Work in accordance with Laws and Regulations concerning airborne dust emissions. Visible dust must be controlled to prevent airborne particulate from migrating off site.

C. The Contractor is responsible for conducting all Work in accordance with Laws and Regulations concerning odor emissions.

1.6 **Protection of Existing Utilities**

A. The Contractor shall contact and cooperate with utility companies to locate all utilities (including pipelines, cables, power poles, guy wires, and other structures) on the site prior to beginning the Work.

B. The Contractor shall comply with the requirements of specific utility protection Laws or Regulations.

C. All utilities shall be protected from damage during construction, unless otherwise indicated to be removed, relocated, or abandoned. If damaged, the utilities shall be repaired as required by the Utility's Owner at the Contractor's expense.

D. If a utility is encountered that is not shown on the Drawings or otherwise made known to the Contractor prior to beginning the Work, the Contractor shall promptly take necessary steps to ensure that the utility is not damaged and give written notice to the Engineer. The Engineer shall then review the conditions and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the utility.

PART 2 – PRODUCTS

(Not used)

PART 3 – EXECUTION

(Not used)

(END OF SECTION 01 14 00)

SECTION 01 22 00

UNIT PRICES

PART 1 – GENERAL

1.1 General

A. All Work performed as described in these Contract Documents will be paid for under one or more of the items listed in the Form of General Bid. All other activities required in connection with performance of the Work, including all work required under Division 1, General Requirements, whether described in the Contract Documents or mandated by applicable codes, permits and laws, will not be separately paid for unless specifically provided for in the form of general bid, but will be considered incidental to performance of the overall project.

B. Each unit or lump sum price stated in the Form of General Bid shall constitute full compensation as herein specified for each item of work completed in accordance with the Contract Documents.

C. The payment items listed herein and in the Form of General Bid are intended to provide full payment for the Work shown on the Contract Drawings and specified herein. Any work called for or inferred in the Contract Documents but not listed as a payment item shall be considered incidental to the overall project, which includes mobilization and demobilization of any equipment and materials and any temporary controls.

D. It is the intent of these Specifications to provide a finished product as shown on the Construction Documents and specified herein.

E. The Contractor is responsible for performing the construction of this project in compliance with the Contract Documents. Unit prices and lump sum prices inserted into the Bid Proposal shall include all contingencies listed in the Contract Documents.

F. The Contractor shall not be compensated for costs incurred due to weather conditions.

G. The Contractor shall reimburse the Owner for costs incurred by the Engineer for design and construction administration services which are caused by the Contractor's inefficient or otherwise faulty administration or execution of its Work. These may include but are not limited to the cost of the Engineer to perform:

1. Except when warranted because of a design defect, repeated review of the Contractor's submittals and re-submittals that are incomplete, substantially out of sequence from the submittal schedule provided by the Contractor and agreed to by the Engineer, or otherwise not in conformance with the Contract Documents.

2. An extensive number of responses to the Contractor's requests for information where such information is available to the Contractor from a careful study and comparison of the

Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

3. An extensive number of Change Orders and Work Change Directives requiring evaluation of proposals and the preparation or revision of Instruments of Service and not otherwise caused by the design defects of the Engineer.
4. Consultation regarding replacement of Work resulting from fire or other cause during construction.
5. Evaluation of an extensive number of claims not otherwise caused by design defect.
6. Evaluation of substitutions proposed by the Contractor and making subsequent revisions to Instruments of Services resulting there from.
7. Preparation of design and documentation for alternate bid or proposal requests proposed by the Contractor.
8. Contract administration services provided thirty (30) days or more after Substantial Completion.

1.2 **Quantity Estimates**

A. If the actual Work requires more or fewer units than the estimated units indicated on Bid Form, the Contractor shall provide the required units at the unit prices contracted. Under no circumstances may the Contractor exceed stated quantities without prior written approval from the Engineer.

1.3 **Payment**

A. Payment includes full compensation for all required labor, products, tools, equipment, plants, transportation, services, incidentals, erection, application, or installation of an item of the Work, including overhead and profit.

B. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from the transporting vehicle.
4. Products placed beyond the lines and levels of the work defined in these Specifications and on the Drawings.
5. Loading, hauling, and disposing of rejected materials.
6. Products remaining on hand after completion of work.
7. Additional work undertaken to expedite the Contractor’s operations.
8. Repair or replacement of utilities or other facilities and property located within or adjacent to the Work Area damaged due to Contractor’s operations.
9. Work resulting from a lack of knowledge of existing conditions.

C. Payment will be made by the Owner for all Work actually performed during a particular payment period. Payments for lump sum items will be made based on the percent completion of the pay item. Upon approval by the Engineer, judgments of percent completion of lump sum items will be made in reference to the Schedule of Quantities and Prices provided.

D. Payment of soil disposal will be made upon the Town LSP's confirmation of the accepting facility's weight receipts and executed transportation and disposal documentation.

E. The actual disposal quantity will be determined in the field based on soil screening and other methods which will be used to evaluate the quantity of impacted soil that will be removed and require off-site disposal. The Contractor will only be compensated for what soil was actually removed on a ton-by-ton basis.

1.4 **Measurement of Quantities**

A. Measurement by Weight:

1. Weigh Scales: Scales shall be certified in accordance with applicable laws and regulations for the state in which the scales are located. Certification shall have been made within a period of not more than one year prior to date of use for weighing commodity.

2. The term "ton" will mean the short ton consisting of 2,000 pounds.

3. For shipments to offsite waste management facilities and locations, trucks will be weighed at the receiving facility for the purpose of measuring the quantity of Work for payment.

B. Measurement by Volume:

1. Volumes measured as in-place volumes will be determined by survey approved by the Engineer. The Contractor will retain the services of an independent land surveyor, licensed or registered in the State of Massachusetts, whose approved determination of in-place volumes shall be authoritative and final for the purpose of measurement for payment. To compute in-place volumes of excavation, the average end area method or other methods acceptable to the Engineer will be used.

C. Measurement by Area: Measured by square dimension using length and width or radius, and verified by the Engineer.

D. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord, and verified by the Engineer.

E. Measurement by Time: Measure by the actual time rounded to the nearest time unit and verified by the Engineer.

F. Disposal of materials either not suitable for re-use or not needed will be measured by the ton of material taken off-site as accepted by the receiving facility. Measurement will be made for each classification as identified in the payment item list. The contract unit prices shall include all costs associated with stockpiling and disposal, including material handling, maintaining the stockpile area, stockpile sheeting, straw bales, drums, fencing, and signage.

G. No separate measurement or payment will be made for determining suitability of materials for on-site usage.

H. No separate measurement or payment shall be made for the on-site or off-site reuse of excavated, surplus, or waste material, including all sampling, analyses, loading, transporting, and unloading activities related hereto.

1.5 **Assessment of Non-Conforming Work**

A. The Contractor shall replace Work, or portions of the Work, that do not conform to the requirements of the Specifications and Drawings, as assessed by the Engineer.

B. If, in the opinion of the Engineer, it is not practical to remove and replace the non-conforming Work, the Engineer will direct one of the following remedies:

1. The non-conforming Work may remain, but the unit price will be adjusted to a new price at the discretion of the Engineer.

2. The non-conforming Work shall be partially repaired to the instructions of the Engineer, and the unit price will be adjusted to a new price at the discretion of the Engineer.

C. The individual Specification sections may modify these options or may identify a specific formula or percentage price reduction.

D. The authority of the Engineer to assess non-conforming work and identify payment adjustment is final.

1.6 **Eliminated Items**

A. Should any items contained in the Drawings or Specifications be found unnecessary for the proper completion of the Work, the Engineer may, upon written order to the Contractor, eliminate such items from the Work. Any such action shall in no way invalidate the Agreement.

B. The Contractor will be paid for actual Work done and all documented costs incurred, including mobilization of materials prior to elimination of such items.

1.7 **Application for Payment**

A. The Contractor shall submit Applications for Payment as specified in General Conditions of these Specifications.

1.8 **Measurement and Payment of Bid Items**

A. The Bid Form lists the Bid Items and Unit Price Items for the Work. Measurement and payment of the Work covered by the Contract Documents is specified herein below.

1.9 **Description of Bid Items**

Item No. 1 & 2 – Mobilization, Site Preparation, and Erosion Control

1. The work of this section shall be measured on a lump sum basis.

2. The lump sum price to be paid shall include all material, labor, tools and equipment required for the Contractor mobilization, site preparation, and erosion control as shown on the Drawings or required in the Specifications.

3. Work required to complete Mobilization, Site Preparation, and Erosion Control includes, but is not limited to:

a. Preparation, submittal, and revision of all required submittals as described in Specification 01 33 00 – Submittals including the Detailed Project Work Plan and Project Schedules.

b. Obtaining required payment and performance bonds.

c. Participation in pre-construction meeting with the Engineer and Owner.

d. Participation in weekly construction meetings with the Engineer and Owner.

e. Coordination with utilities as needed.

f. Performing utility clearance prior to commencement of any subsurface work.

g. Temporary construction facilities and controls including installation of perimeter construction fence, and removal, relocation, and installation for each phase of construction.

h. Relocation of temporary facilities for all phases of construction.

i. Installation of a pedestrian path around the projects limit of work as shown in the Drawings.

j. Labor and materials associated with implementing the flood contingency plan.

k. Protection of utilities as required.

l. Construction and maintenance of temporary support facilities and temporary utilities.

m. Preparation of material and equipment staging areas.

n. Protection of trees and all vegetation not to be removed.

o. Movement of personnel, equipment, and materials to the Site, if such movement is not included in any other Bid Item.

p. Completion of all survey required to control the work and determine measurement and payment as necessary.

q. The lump sum price shall also include obtaining and paying fees associated with any required permits.

r. All other one-time and recurring activities required by the Contractor to complete the Project unless included in another pay item or specifically identified as being the responsibility of Others.

s. All material, labor, tools and equipment required for the Contractor to install erosion control measures as shown on the Drawings, required in the Specifications, by issuing permitting authority, or at the request of the Engineer.

t. Installation, inspection, maintenance, and repair of all sediment and erosion controls including, mulching, tree protection, straw wattles, erosion control matting, and temporary seeding as specified in Specification 31 25 00 – Erosion and Sediment Controls and as shown on the Drawings during all phases of construction.

Item No. 3 – Demolition and Site Clearing

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for the Contractor to complete Demolition and Site Clearing work as shown on the Drawings or required in the Specifications.
3. Work required to complete Site Clearing includes, but is not limited to:
    a. Clearing, staging, stockpiling, loading, and disposal of vegetation, stumps, and roots.
    b. Removal and disposal of vegetation including all roots and stumps in the excavation area.
    c. Removal and disposal or storage of existing utilities as required for construction.
    d. Removal and disposal of bridge superstructure, including existing roadway pavement, concrete sidewalks, steel bridge railing, granite curbs, subbase and all other bridge components as required for construction and shown on the Drawings.
    e. Protection of stored items to be reused. Items damaged while being stored shall be replaced in-kind at no additional costs.

Item No. 4 – Water Management

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for the Contractor to control surface water runoff, removal of subsurface water, prevent intrusion of river flows, and prevention of sediment laden discharge for all phases of construction.
3. Work required to manage water entering the work site includes, but is not limited to:
    a. Selecting, designing and installing / removing coffer dams capable of preventing / limiting intrusion of flows from the Aberjona River and maintaining a dry excavation for all phases of construction.
    b. Selecting, designing and installing / removing an excavation dewatering system to effectively reduce the hydrostatic pressure and lower the groundwater levels to a minimum of 2 feet below the bottom of excavations. The Dewatering System may include pumps and piping or hose, instrumentation and controls, sumps, wells, well points, and temporary diversion devices.
    c. Provide, maintain, and operate wells, pumps, and related equipment including stand-by equipment of sufficient capacity to maintain excavations free of water 24 hours per day to enable all work to be conducted in-the-dry.
    d. Management and disposal of any stormwater that discharges from existing stormwater outfalls within the work area.
    e. Operations shall be on a continuous (24 hour per day) basis to maintain a dry excavation where excavation or backfill below the water is required.

Item No. 5 – Traffic Management

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for the Contractor to implement traffic controls on Shore Road and other necessary streets as shown on the Drawings or required in the Specifications.
3. The Contractor shall submit a detailed traffic management plan to the Engineer and Town for approval prior to the start of any work. Work required to complete Traffic Management includes, but is not limited to:
    a. Establishing traffic controls, as necessary, as determined by the Engineer or Owner. Traffic controls shown on the Drawings are the minimum required. If deemed necessary, additional traffic controls shall be supplied by the Contractor at no additional cost to the owner.
    b. Traffic controls may include but are not limited to impact attenuators, temporary barricades, reflectorized drums, temporary construction signs, reflective traffic cones, and all roadwork and temporary traffic signage.
    c. Police detail as required to complete the project.
4. The lump sum price shall include any fences, barricades and traffic control deemed necessary by the Engineer or Owner.

Item No. 6 – Excavation, Handling, and Loading

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for Contractor to complete excavation, handling and loading for all phases of construction as shown on the Drawings or required in the Specifications.
3. Excavation shall include all materials encountered in excavation areas including earth, boulders, pavement and incidental items.
4. Work required to complete Excavation, Handling, and Loading includes, but is not limited to:
    a. Excavating, handling, stockpiling and loading of excavated material required to complete the work.
    b. Any on-site transportation and handling of excavated material.

Item No. 7 – Alteration to Bridge Structure No. W-40-029 (2D8)

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for the Contractor to complete the bridge improvements, and any and all ancillary items necessary, in accordance with the Drawings.
3. Work required to complete the Bridge Improvements includes, but is not limited to:

a. Fabricate, transport, and install all precast highway guardrail transitions.

b. Furnish and install the cast-in-place concrete shared use path, safety curb, and moment slabs.

c. Fabricate, transport, and install the S3-MTL4 steel bridge railings, and any and all ancillary items necessary.

d. Furnish and install all steel reinforcement, sealants, miscellaneous steel, hardware, bridge rail anchor plates and anchor bolts, and all other items incidental to the work.

e. Drill and grout holes in the existing structure for steel reinforcing dowels.

f. Membrane waterproofing for bridge decks.

Item No. 8 – Transportation and Disposal

1. The work of this section shall be measured on a per ton basis.
2. The unit price to be paid shall include all material, labor, tools and equipment required for Contractor to Transport and dispose of excess material at an approved off-site facility for all phases of construction as shown on the Drawings or required in the Specifications.
    a. Transporting soil from the Site to the disposal area in accordance with Specification Section 02 81 00 – Transportation and Disposal at the approved facility.
    b. For bidding purposes, the Contractor shall assume disposal of 70 Tons of material to complete the Project.
    c. Any sampling and testing required by the disposal facility.

Item No. 9 – Roadway Reconstruction

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for Contractor restore, resurface, and restripe Shore Road as shown on the Drawings or required in the Specifications.
3. Work required to complete roadway reconstruction includes, but is not limited to:
    a. Pavement reconstruction within the limits of work and vicinity of the proposed bridge improvements as shown in the Plans and in accordance with the relevant provisions of Subsection 450 of Division II of the *Standard Specifications*.
    b. Milling and resurfacing within the limits of work to drain towards the proposed stormwater inlets and avoid ponding as shown in the Plans and in accordance with the relevant provisions of Subsection 450 of Division II of the *Standard Specifications*.
    c. Installation of highway guardrail beyond the bridge rail transitions in accordance with the relevant provisions of Subsection 601 of Division II of the *Standard Specifications*.
    d. Installation of concrete shared use path, safety curb and granite curbing.
    e. Installation of roadway traffic loop detectors.

f. Traffic striping and signage.

Item No. 10 – Site Restoration and Grading

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for the Contractor fine grade, and seed as shown on the Drawings or required in the Specifications.
3. Work required to fine grade and seed shall include, but may not be limited to:
    a. Furnishing and spreading of topsoil. All areas to be seeded and/or planted shall have a minimum of 6 inches of approved topsoil.
    b. Fine grading to meet the required grades and provide adequate drainage.
    c. Installation of erosion control blanket.
    d. Furnishing and spreading of upland seed mix.
    e. Furnishing and installation of plant species as shown on the drawings.
    f. All areas disturbed during construction shall be seeded and/or planted as shown on the Drawings or to a condition equal to that prior to the start of construction.
    g. Application of lime and fertilizers.
    h. Application of mulch or a bonded fiber matrix to protect newly seeded areas.
    i. Maintenance and reseeding as required to achieve adequate coverage.
    j. Resetting site features or utilities impacted during construction.
    k. Restoration of the Site to a clean, neat, and orderly condition including repair of any additional damaged asphalt, sidewalk, and lawn area, as required by the Engineer.
    l. Repairing any damage to existing site features, utilities, benchmarks, or landscaping to remain.

Item No. 11 – Demobilization and Site Cleanup

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for Contractor to complete the Demobilization and Site Cleanup as shown on the Drawings or required in the Specifications.
3. Work required to complete Demobilization and Site Cleanup includes, but is not limited to:
    a. Removal of all personnel, equipment, and materials from the Site at the completion of the Work.
    b. Removal of temporary facilities, utilities, cofferdams, support of excavation, erosion and sediment controls.
    c. Removal and disposal of construction debris.

d. Removal of stockpile areas.

e. Restoration of the Site to a clean, neat, and orderly condition including repair of any additional damaged asphalt, sidewalk, and lawn area, as required by the Engineer.

f. Completion of punch list items to substantially complete all work as determined by the Engineer.

Item No. 12 – Record Drawings

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for Contractor to produce an accurate survey of completed work in accordance with Specifications Section – 01 78 39 Record Drawings.
3. Work required to complete a Record Drawing includes, but is not limited to:
    a. Providing an as-built plan of the field elevations, grades and inverts stamped by a Professional Land Surveyor (PLS), registered in Massachusetts.
    b. The plan should detail the horizontal and vertical location of all internal utilities and appurtenances, concealed by finish materials.
    c. Providing a copy of the marked-up design drawings kept by the Contractor.
    d. Providing an electronic version of the as-built plan in AutoCAD® format.

Item No. A – Selective Vegetation Removal and Plantings

1. The work of this section shall be measured on a lump sum basis.
2. The lump sum price to be paid shall include all material, labor, tools and equipment required for the Contractor to remove approximately 600 SF of invasive species by hand methods and in accordance with the Order of Conditions issued by the Winchester Conservation Commission.
3. Work required to remove selective vegetation and plantings includes, but is not limited to:
    a. Invasive vines shall be removed by hand in the area located northwest of the proposed work.
    b. No less than 10 native species of shrubs shall be planted in the area located northwest of the proposed work. Shrubs shall include:
        (3) Sweet pepperbush (*Clethra alnifolia*)
        (3) Grey dogwood (*Cornus racemosa*)
        (4) Black chokeberry (*Photinia melanocarpa*)

PART 2 – PRODUCTS

(Not used)

PART 3 – EXECUTION

(Not used)

(END OF SECTION 01 22 00)

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.1 Summary

A. This Section includes administrative and procedural requirements for submitting shop drawings, product data, product samples, and other miscellaneous submittals.

B. Submittals may be rejected for not complying with requirements.

C. Submittals requiring fabrication (i.e. steel bridge railing, reinforcing, and precast highway guardrail transitions) shall be of high priority and include early action submittals.

1.2 Related Documents

A. Drawings and general provisions of the Contract.

B. Division I of the 2025 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges and any other Supplementary Conditions.

1.3 Definitions

A. Action Submittals: Written and graphic information that requires Engineer's responsive action.

B. Informational Submittals: Written or graphic information that does not require Engineer's approval.

1.4 Submittals

A. Upon award of the contract, the Contractor shall provide at a minimum the following submittals:

1. Resource-Loaded Project Schedule with clearly defined milestones
2. Staffing Plan
3. Detailed Project Work Plan
4. Contractor Health and Safety Plan
5. Demolition Plan
6. Water Management Plan including, but not limited to:
    a. Shop and Installation Drawings for Water Control Equipment.
    b. Operating and Maintenance Instructions for Water Control Equipment.
    c. Manufacturer's Certificate of Installation for Water Control Equipment.
    d. Test Reports of Test Procedures and Equipment for Water Control Equipment.

e. Means and methods to manage stormwater discharges into the site for outfalls affected during construction.

7. Traffic Management Plan
8. Concrete Repair Plan
9. Support of Excavation
    a. Shop Drawings and Calculations for Lateral and Vertical Support System if used.
10. Soil Management and Disposal Plan
11. List of Proposed Temporary Facilities
12. Early Action Submittals, including but not limited to:
    a. Shop drawings for S3-MTL4 steel railing
    b. Shop drawings for reinforcing
    c. Shop drawings for precast guardrail transitions
13. Product Submittals, including but not limited to:
    a. Product Data for cast-in-place concrete materials
    b. Concrete design mix
    c. Product Data for all concrete repair materials
    d. Earthwork material submittals
    e. Product Data Sheets for all erosion control materials
    f. Asphalt paving job mix formula submittals
    g. Pavement marking submittals
    h. Seeding submittals and certifications
    i. Soil test reports
    j. Product Data for each type of guardrail
    k. Documentation necessary to justify equivalency for substitute items proposed by Contractor (if applicable)
14. As-built Submittals
    a. An electronic version of the As-Built plan in AutoCAD® 2020 format
    b. Complete set of marked up Record Drawings.

B. No material shall be brought on site without an approved submittal.

1.5 Submittal Procedures

A. General: The Contractor shall submit shop drawings of all materials brought on site for acceptance by the Engineer. Electronic submittals are preferred. The Contractor shall provide hard copies of any submittal if requested by the Engineer.

B. Coordination: The Contractor shall coordinate preparation and processing of submittals with performance of construction activities.

C. Processing Time: The Contractor shall allow enough time for submittal review, including time for resubmittals. The Contractor shall allow 10 business days for initial review of each submittal.

1. Time for review shall commence with Engineer's receipt of submittal.

2. No extension of the Contract Time will be authorized because of failure to transmit submittals in a timely fashion prior to the commencement of the Work.

D. Transmittal: The Contractor shall package each submittal individually and appropriately for transmittal and handling. The Contractor shall transmit each submittal using a transmittal form.

1. The Contractor shall include the following information on the transmittal form:

a. Project name

b. Date

c. Name and address of Engineer

d. Name and address of Contractor

e. Name and address of subcontractor(s)

f. Name and address of supplier

g. Name of manufacturer

h. Unique identifier, including revision number

i. Number and title of appropriate Specification Sections and Subsections

j. Drawing number and detail references, as appropriate.

2. The Engineer will return transmittals, without review, received from sources other than the Contractor or submittals without a transmittal form.

E. Submittal Sequencing: Submittals shall be numbered sequentially with revision numbers for resubmissions.

F. Distribution: The Contractor shall furnish copies of final submittals to manufacturers, sub-subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. The Contractor shall indicate distribution on transmittal forms.

G. Use for Construction: The Contractor shall use only final submittals with mark indicating action taken by Engineer in connection with construction.

PART 2 - PRODUCTS

2.1 Action Submittals

A. General: The Contractor shall prepare and submit one (1) copies of each Action Submittal required by individual Specification Sections, unless otherwise indicated. Electronic submittals will be the only format accepted.

B. Record Drawings: The Contractor shall keep and maintain one record set of drawings to mark all project conditions, locations, and details of the construction. Special attention shall be given to recording the horizontal and vertical locations of the vegetated soil cap, geotextile barriers and all buried utilities that differ from the locations indicated, or which were not indicated, on the Engineering Drawings.

1. Upon substantial completion of the work and prior to final acceptance, the Contractor shall provide a complete set of record drawings to the Engineer for review and approval. The Contractor shall be responsible for the accuracy of such information, and for any errors or omissions that may appear on the Record Drawings as a result.
2. The Record Drawing Set shall include a survey of as-built conditions.
3. Electronic copies of Engineering Drawings in AutoCAD® format will be provided by the Engineer for Subcontractor's use in preparing record drawings upon request. The AutoCAD file will contain the triangulated irregular network (TIN) surfaces of the sub-grade elevations and the final grade elevations.

PART 3 - EXECUTION

3.1 Contractor's Review

A. The Contractor shall review each submittal and check for compliance with the Contract Documents. The Contractor shall note corrections and field dimensions and mark with an approval stamp before submitting to Engineer.

3.2 Engineer's Action

A. General: The Engineer will not review submittals that do not bear Subcontractor's approval stamp and will return them without action.

B. Action Submittals: The Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. The Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. Approved
2. Approved As Noted
3. Amend and Resubmit
4. Rejected, See Remarks

C. Informational Submittals: The Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. The Engineer will forward each submittal to the appropriate party.

D. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

(END OF SECTION 01 33 00)

SECTION 01 35 43

ENVIRONMENTAL PROTECTION

PART 1 – GENERAL

1.1 Protection of Land Resources

A. The Contractor shall confine his/her construction activities to areas defined by the Contract Documents. Land resources within the project site boundaries and outside limits of the work as may be affected by the work of this Contract shall be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural.

1.2 Prevention of Landscape Defacement

A. The Contractor shall not deface, injure or destroy trees or shrubs, nor remove or cut them without permission. Ropes, cables or guys shall not be fastened to or attached to trees for anchorage unless approved for emergency use. Where such special emergency use is permitted, the Contractor shall wrap the trunk with burlap or rags, and tie softwood cleats over wrapping. The Contractor shall be responsible for any damage resulting from such use.

B. Where tree protection is called out on the Drawings or where trees may possibly be defaced, bruised, injured, or damaged by equipment, dumping or other operations, the Contractor shall protect such trees by wrapping tree trunks with burlap and tying softwood cleats around the trunks. In addition, construction fencing shall be staked around the perimeter of the drip line to protect compaction of the root zone. Monuments and markers shall be protected at all times.

1.3 Restoration of Landscape Damage

A. Trees or landscape features scarred or damaged by equipment or operations shall be restored as nearly as possible to original condition. Scars made on trees by equipment, or by the removal of limbs larger than one inch in diameter, shall be coated with an approved tree wound dressing. Trimming or pruning shall be performed in an approved manner. Trimming with axes will not be permitted.

1.4 Post-Construction Cleanup and Obliteration

A. The Contractor shall obliterate signs of temporary construction facilities such as roads, work areas, structures, stockpiles of excess or waste materials, or any other vestiges of construction caused by the Contractor. Stockpiled material designated to remain on-site shall be stabilized as directed by the Engineer.

1.5 Water Contamination

A. The Contractor shall not pollute waterways. Wasted soil material, refuse, fuels, oils, bitumens, calcium chloride, acids, or toxic materials shall be disposed of in a manner to prevent their entry into the water. Contractor shall comply with applicable federal, state, and local laws

concerning pollution of rivers and streams. Work shall be performed in such a manner that objectionable conditions will not be created on or adjacent to project site areas.

1.6 **Erosion and Sediment Control**

A. The Contractor shall submit a plan for approval by the Engineer showing and describing the scheme for controlling erosion and sedimentation, and for disposing of wastes, prior to construction. The Contractor shall conform to the erosion and sediment control requirements of the Commonwealth of Massachusetts, and to the provisions of any erosion and sediment control plan included in documentation submitted for review of the project.

1.7 **Dust Suppression**

A. The Contractor shall maintain access areas and other work areas within or beyond the project site boundaries free from dust which would cause a hazard or nuisance to others. Dust control shall be performed as the work proceeds and whenever a nuisance or hazard occurs.

1.8 **Pollution Control**

A. The Contractor shall maintain facilities constructed, as applicable, for pollution control as long as the operations creating the particular pollutant are being carried out, or until the material concerned has become stabilized to the extent that pollution is no longer created.

B. The Contractor shall comply with the Massachusetts Department of Environmental Protection State Revolving Fund Diesel Retrofit Program.

1.9 **Compliance with Environmental Permits**

A. The Contractor shall comply with all environmental permits issued in connection with this project, and any conditions attached to these permits. These permits include but are not limited to:

1. Winchester Conservation Commission Order of Conditions DEP #346-598 and Winchester Wetlands Bylaw #598, dated 4/8/25
2. United States Army Corps of Engineers Section 404 Certification – Submission of the Self Verification Notification to USACE is pending.

PART 2 – PRODUCTS

1.10 **Tree Protection Fencing**

A. Tree protection fencing shall be an orange plastic web fence, 4 feet high minimum. Wood stakes shall be six (6) foot long by 1 inch by 1 inch square driven a minimum of two (2) feet into the ground. Posts shall be spaced eight (8) feet on center, maximum.

PART 3 – EXECUTION

(Not used)

(END OF SECTION 01 35 43)

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.1 Summary

A. This Section includes requirements for temporary facilities and controls, temporary utilities, support facilities, and security and protection facilities, including:

1. Temporary field office (if required);
2. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities; and
3. Waste disposal facilities.

B. Water Service: Potable water is not available at the site. As such, the Contractor shall be responsible for providing temporary potable water supplies at the site.

C. Electric Power Service: Electrical power is not available at the site. As such, the Contractor shall be responsible for providing temporary power (generators or via other approved means) to the site if required to facilitate construction.

D. The Contractor shall maintain construction fencing around the Site, all stockpile areas, excavation areas, process areas, and work zones as shown on the Drawings, and modify as necessary for each phase of construction.

E. The Contractor shall remove all soil, mud, and residuals from vehicle wheels, fenders, and tailgates before exiting to public streets.

F. The Contractor shall provide, install, and maintain all required sediment and erosion controls as specified in Section 31 25 00 – Erosion and Sediment Control and shown on the drawings.

G. The Contractor shall maintain all Work areas free of waste materials, debris, and rubbish, maintain the Work site in a clean and orderly condition, and collect and remove waste materials, debris, and rubbish from the Work site weekly and dispose off site.

H. The Contractor shall conduct street sweeping at least weekly, or more frequently if needed, to keep the streets free of soil.

1.2 Related Documents

A. Division I of the 2025 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges and any other Supplementary Conditions.

1.3 Submittals

A. Upon award of contract, the Contractor shall provide a list of proposed temporary facilities required for informational purposes.

PART 2 – PRODUCTS

2.1 Materials

A. General: Provide new materials.

1. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer.

2. Provide materials suitable for use intended.

2.2 Equipment

A. General: Provide equipment suitable for use intended.

B. Field Office: The Contractor shall coordinate the location of the field office (if necessary) with the Owner. If provided, the Contractor shall share use of the field office with the Engineer. The field office shall be equipped with a hand carried, portable, UL rated fire extinguisher.

C. Self-Contained Toilet Units: The Contractor shall provide single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

PART 3 – EXECUTION

3.1 Installation, General

A. The Contractor shall locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. The Contractor shall relocate and modify facilities as required.

B. The Contractor shall provide all facilities during mobilization and prior to commencement of Work and shall maintain and modify them as required. The Contractor shall not remove facilities until they are no longer needed.

C. If required, the Contractor shall maintain the Field Office in a neat and orderly manner. The Contractor is responsible for removing trash on a weekly basis.

3.2 Temporary Utility Installation

A. Sanitary Facilities: The Contractor shall provide temporary toilets and wash facilities. The Contractor shall comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: The Contractor shall provide toilet tissue, paper towels, and similar disposable materials for each facility and maintain adequate supply. The Contractor shall provide covered waste containers for disposal of used material.

2. Toilets: The Contractor shall install self-contained toilet units.

3.3 Support Facilities Installation

A. General: The Contractor shall comply with the following:

1. If required, the field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities shall be located for easy access.

2. Support facilities shall be maintained until near Substantial Completion and removed before Substantial Completion.

B. Waste Disposal Facilities: The Contractor shall provide waste-collection containers in sizes adequate to handle waste from construction operations. The Contractor shall containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.

3.4 Installation of Environmental Protection Controls

A. Environmental Protection: The Contractor shall provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and Specification Section 01 35 43 - Environmental Protection. Closure of construction shall minimize possible air, waterway, and subsoil impacts or other undesirable effects.

(END OF SECTION 01 50 00)

SECTION 01 56 01

TEMPORARY FENCE

TEMPORARY FENCE REMOVED AND RESET

PART 1 - GENERAL

1.1 Description

A. This Section specifies requirements for furnishing, installing, removing, resetting, and final removal of temporary construction fencing around the work areas as required by the Engineer.

B. No separate payment will be made for all posts including end, corner, and intermediate brace posts, all gates and gate posts, removing and resetting of temporary fence for the convenience of the Contractor, the replacement and/or restoration of fence damaged due to construction accidents, vandalism and/or any other manner, final removal, but all costs in connection therewith shall be included in the Contract unit price bid.

1.2 References

A. 2025 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges. This document is referenced by language "Standard Specifications", "Section", and "Subsection" in the following special provisions.

B. Current edition of the Manual of Uniform Traffic Control Devices.

PART 2 - PRODUCTS

2.1 Temporary Chain Link Fencing

A. Temporary fencing shall conform to the relevant provisions of Subections 644 and 665 of Division II of the *Standard Specifications*.

B. Unless otherwise indicated, type of temporary chain link fencing shall be the Contractor's option. The following types are acceptable:

1. New materials or previously used salvaged chain link fencing in good condition – subject to inspection/approval by the Engineer.

2. Posts: Galvanized steel pipe of diameter to provide rigidity. Post shall be suitable for setting in concrete footings, driving into ground, anchoring with base plates, or inserting in precast concrete blocks.

3. Fabric: Woven galvanized steel wire mesh. Provide in continuous lengths to be wire tied to fence posts or prefabricated into modular pipe-framed fence panels.

C. Installation of temporary fencing shall not deter or hinder access to existing or proposed fire hydrants. Maintain 3 feet diameter clear space around fire hydrants. Where fire hydrant is blocked by fencing, provide access gate.

D. The fence shall not be removed without prior approval of the Engineer.

E. The contractor shall maintain temporary fence in good condition all the time. If damaged, shall be immediately repaired.

F. The Contractor shall backfill and compact holes. Holes in pavement shall be surfaced to match existing pavement. The contractor shall repair all damage caused by the installation of temporary fencing.

2.2 Gates

A. Provide personnel and vehicle gates as required for functional access to site.

1. Fabricate of same material as used for fencing.

2. Vehicle gates:

a. Minimum width: 20 feet to allow access for emergency vehicles.

b. Capable of manual operation by one person.

B. Gates shall be fabricated using welded construction or heavy pressed steel or malleable corner fitting securely riveted. Gates shall be properly braced and diagonally trussed to eliminate any possible sagging. Hinges shall be of sufficient strength and design to permit easy and trouble-free operation. All single swing gates shall be equipped with two H.O. hinges and one yoke latch per gate. All double swing gates shall be equipped with a positive type latching device with padlock fitting.

PART 3 – EXECUTION

(Not used)

(END OF SECTION 02 29 80)

SECTION 01 78 39

RECORD DRAWINGS

PART 1 – GENERAL

1.1 Summary

A. Work specified in this Section shall consist of procedures for as-built surveys and record drawings.

1.2 Record Drawings

A. Prior to final payment, the Contractor shall provide an as-built plan of the bridge structure, roadway and adjacent grades within the limit of work, and utility location and inverts stamped by a Professional Land Surveyor (PLS), registered in Massachusetts, detailing all installations. An electronic version of the as-built plan in AutoCAD® format shall also be provided.

B. Record Drawings shall consist of all the Contract Drawings with all mark-ups made during construction.

C. From the sets of drawings furnished by the Owner, the Contractor shall reserve one (1) set for record purposes.

D. The Contractor and the above Subcontractors shall keep their marked up Record Drawing set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This shall include the location and dimensions of underground and concealed Work including subgrade elevations, and any architectural, mechanical, or electrical variations from the Contract Drawings. All changes, including those issued by Addendum, Change Order, or instructions by the Engineer shall be recorded. Marked-up Record Drawings shall be prepared for the entire project and include all Work, including but not limited to:

1. The horizontal and vertical location of all internal utilities and appurtenances, concealed by finish materials, including but not limited to valves, coils, dampers, vents, cleanouts, strainers, pipes, junction boxes, turning vanes, variable and constant volume boxes, ducts, traps, and maintenance devices.

    a. The location of these items shall be shown by offsets to structure and drawing grid lines.

    b. The tolerance for the actual location of these items on the marked up Record Drawings shall be plus or minus 0.1 feet.

    c. Each item shall be referenced by showing a tag number, areas served, and function on the marked up Record Drawing.

E. The Engineer may periodically inspect the marked-up Record Drawings at the site. The proper and current maintenance of the information required on these drawings shall be a condition precedent to approval of the monthly applications for payment.

F. During the course of the Work, the Contractor will record final locations and elevations of all excavation work when complete in each area.

G. At Substantial Completion, the Contractor shall submit the complete set of marked up Record Drawings to the Engineer. The Contractor shall check all marked up Record Drawings prepared by Subcontractors and certify in writing on the title sheet of the drawings that they are complete and correct, prior to submission to the Engineer.

H. The Engineer shall review the marked up Record Drawings and verify by letter to the Owner that the Work is complete. The Contractor shall incorporate any and all changes onto the As-Built Drawing.

I. The Contractor may make a written request for copies of the completed Record Drawings. The Contractor shall reimburse the Owner directly for the cost of printing of any requested Record Drawings.

J. Submission of accurate marked-up Record Drawings and As-Built Drawings and their approval by the Engineer shall be a condition precedent to final payment.

PART 2 – PRODUCTS

(Not used)

PART 3 – EXECUTION

(Not used)

(END OF SECTION 01 78 39)

SECTION 01 89 00

SITE CONSTRUCTION PERFORMANCE REQUIREMENTS

PART 1 - GENERAL

1.1 Description

A. This Section specifies the general requirements for the site work included in the Contract.

B. These requirements supplement those contained in the Standard General Conditions of the Construction Contract and their Supplemental Conditions.

C. References are included in this Section to Articles of the General Conditions to call the Contractor's attention to frequently needed requirements.

1.2 Permits

A. Unless otherwise provided in the Supplementary Conditions, the Contractor shall obtain and pay for all construction permits and licenses. The Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. The Contractor shall pay all charges and inspection fees necessary for the prosecution of the Work, and shall pay all charges of utility owners for connections to the Work.

1.3 Laws and Regulations

A. Contractor shall give all notices and comply with all laws and regulations applicable to furnishing and performance of the Work.

B. If the Contractor performs any work that is contrary to laws or regulations, the Contractor shall bear all claims, costs, losses and damages caused by, arising out of or resulting therefrom.

1.4 Utilities

A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing underground facilities (utilities) at or contiguous to the site is based on information and data furnished to Owner or Engineer by the owners of such underground facilities (utilities) or by others.

1. The Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. The cost of all of the following will be included in the Contract and Contractor shall have full responsibility for: (i) reviewing and checking all such information and data; (ii) locating all underground facilities (utilities) shown or indicated in the Contract Documents; (iii) coordination of the Work with the owners of such underground facilities (utilities) during construction; and (iv) the safety and protection of all such underground facilities (utilities) and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated: If an underground facility (utility) is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents, the Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency), identify the owner of such underground facility (utility) and give written notice to that facility (utility) owner and to Owner and Engineer. Engineer will promptly review the underground facility (utility) and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the underground facility (utility). If the Engineer concludes that a change in the Contract Documents is required, revised plans and specifications will be issued to reflect and document such consequences. During such time, the Contractor shall be responsible for the safety and protection of such underground facility (utility).

C. Contractor shall notify all municipal agencies and utility companies owning or operating utilities, of proposed work affecting the utilities, or agencies.

D. Contractor shall give written notification within the time period required by the agency or company for advance notification. A copy of the notification shall be furnished to the Engineer.

E. Contractor shall notify "DIG SAFE" before commencing any work in the vicinity of existing subsurface utilities.

F. Contractor shall secure in-place existing utilities whose support is affected by the work and cooperate and assist the agency or company operating the utility in maintaining the utility services. Contractor shall correct any damage to the utilities caused by construction operations by repair or replacement, as required by the utility owner. When the repair or replacement is made by the utility owner, Contractor shall pay all costs assessed by the utility owner for the work.

G. If the existing utilities are found to conflict with the proposed work, the Contractor shall protect and maintain the utilities and take measurements to determine the location, type and dimensions of the utility. The information shall be furnished to the Engineer who will determine the changes required in the proposed work or existing utilities to resolve the conflict as soon thereafter as is reasonable.

H. Contractor shall verify the location, size, invert elevation and type of existing facilities at all points of connection prior to ordering new utility materials.

1.5 Soils Information

A. Existing soil information is unavailable.

B. The Contractor may make subsurface explorations upon written request to, and upon approval by, the Owner at no additional cost to the Owner.

1.6 Soil Support

A. Contractor shall furnish and install excavation soil support devices or use soil strengthening techniques required to perform excavations in accordance with the current requirements of the U.S. Department of Labor, Occupational Health & Safety Administration and all federal, state, and municipal laws and regulations.

1.7 **Reference Standards**

A. References are made to technical societies, organizations and groups using the following abbreviations. All work so referred shall conform to the current edition of the referenced standard.

AASHTO	American Association of State Highway Transportation Officials
ACI	American Concrete Institute
ACOE	United States Army Corps of Engineers
AGC	Associated General Contractors of America
ANSI	American National Standards Institute
AOAC	Association of Official Agricultural Chemists
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWWA	American Water Works Association
NEMA	National Electrical Manufacturers Association
NEWWA	New England Water Works Association
OSHA	Occupational Safety and Health Administration
UL	Underwriters Laboratory

1.8 **Traffic Maintenance**

A. The Contractor shall maintain access to the site and through the work zones for personnel and vehicles of emergency services, utility agencies, inspection services, and others authorized to enter, move about and work on the site.

B. The Contractor shall furnish, install, maintain, and remove all signs, drums, barricades, steel plates, and other devices required by the federal or state government or municipality to maintain and protect pedestrians and vehicular traffic.

C. Protective measures shall be installed at site access points to prevent mud and other debris from being deposited on the public roadways by construction traffic. The public roadways shall be swept as required to remove any deposits.

PART 2 – PRODUCTS

(Not used)

PART 3 – EXECUTION

(Not used)

(END OF SECTION 018900)

SECTION 02 00 00

EXISTING UTILITIES AND UNDERGROUND STRUCTURES

PART 1 – GENERAL

1.1 **Summary**

A. The Contractor is responsible for locating all utilities and existing culverts prior to the start of construction.

B. The Contractor shall call Dig Safe at 1-888-344-7233 at least 72 hours, Saturdays, Sundays and holidays excluded, prior to excavating at any location. A copy of the Dig Safe project reference number(s) shall be given to the owner prior to excavation.

C. The Contractor shall coordinate with all applicable utility owners prior to excavation in areas where it is reasonable to expect the presence of existing utilities, whether shown on the Plans or not.

D. The Contractor shall be responsible for all damage to any existing utilities and culverts, whether known or unknown, caused by their efforts.

E. The Contractor shall comply with the requirements of specific utility protection Laws or Regulations.

F. If a utility is encountered that is not shown on the Plans or otherwise made known to the Contractor prior to beginning the Work, the Contractor shall promptly take necessary steps to ensure that the utility is not damaged, and give written notice to the Engineer. The Engineer shall then review the conditions and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the utility.

G. All utilities shall be protected from damage during construction, unless otherwise indicated to be removed or abandoned. If damaged, the utilities shall be repaired as required by the Utility's Owner at the Contractor's expense.

H. The Contractor shall contact the affected utility as soon as any damage is uncovered.

I. The utility shall make the determination as to who makes the necessary repairs.

PART 2 – PRODUCTS

(Not used)

PART 3 – EXECUTION

(Not used)

(END OF SECTION 02 00 00)

SECTION 02 81 00

TRANSPORTATION AND DISPOSAL

PART 1 - GENERAL

1.1 Summary

A. This section includes transportation of excavated and demolition materials and debris to waste management facility. The Contractor will bid on Transportation and Disposal but this Work may be conducted by others.

B. The Contractor shall comply with applicable requirements of this Section even if the Transportation and Disposal are provided by others.

C. The Contractor shall be solely responsible for proper loading of and abiding by the load limits and weight limits for all vehicles leaving the Project site, and for any fines, taxes, penalties or judgments resulting from overweight or improperly loaded vehicles.

1.2 Submittals

A. The Contractor shall provide a list of proposed waste haulers for approval by Engineer. Contractor shall submit copies of all necessary permits and certifications of listed waste haulers to Engineer before commencing the Work.

B. The Contractor shall submit written certification of proper transport of materials and debris to Engineer within ten working days after receipt of the documentation. The Contractor shall submit copies of all waste manifests, Weigh Tickets, and bills of lading.

1.3 Coordination with Designated Waste Management Facilities

A. The Contractor shall be responsible for coordinating waste shipments with the designated waste management facility.

B. The Contractor shall only ship waste and soil to Owner-approved waste management facilities.

C. The Contractor shall obtain written approval from the Engineer before sending any waste to an off-site disposal facility.

1.4 Shipping Documentation

A. Shipping documentation shall be performed consistent with federal, state, and local waste management and transportation requirements and the requirements of off-site disposal facilities.

B. The Contractor shall prepare necessary paperwork for transportation and disposal of all materials to the appropriate waste management facilities.

C. The Contractor shall not be paid for shipments with unsigned shipping documentation.

D. Daily Trucking Log:

1. The Contractor shall provide a Daily Trucking Log to the Engineer for approval providing information on each off-site shipment from the site, including trucking company, truck and trailer registration number, date, pre-characterization source ID, destination facility, estimated quantity, and Contractor personnel's initials.
2. The Contractor shall fill in the Daily Trucking Log for each shipment at the time it leaves the Site.
3. The Contractor shall not be paid for any shipment if there are discrepancies between Daily Trucking Logs and facility weigh tickets until the discrepancy is resolved, as determined by the Engineer.

PART 2 – PRODUCTS

(Not used)

PART 3 – EXECUTION

3.1 Preparation for Transport

A. The Contractor shall coordinate transportation work with excavation and demolition work to maintain excavation production rates for completion of the work in accordance with the Construction Milestones. Slowing or stopping of excavation work by Contractor for reason of lack of transportation or availability of shipping containers will not be acceptable.

B. Loading operations and hours shall be coordinated with the operating hours of landfills or other designated off-site facilities. Loading shall be limited to the hours of 7:00 a.m. to 3:00 p.m., Monday through Friday, or as otherwise specified or approved by the Engineer. Any vehicle loaded after disposal hours shall remain parked at the Project Site in a designated area of the Secured Zone until such time as that truck may reasonably proceed to the designated waste management facility. The Contractor shall coordinate excavation, demolition, stockpiling, loading, and transportation, subject to the Engineer's approval, to efficiently utilize combined resources. The Contractor's operations shall be coordinated to minimize standby time and minimize truck-waiting time, and to maximize excavation production and hauling production.

3.2 Hauling of Materials and Debris

A. The Contractor shall furnish and operate all vehicles and containers for transportation of materials from the Project Site.

B. The Contractor shall load and transport all categories of materials and debris.

C. Drivers shall drive directly to disposal facility and shall not stop except in the event of an emergency.

D. Transportation of materials and debris shall comply with all pertinent regulations.

E. Each truck bound for the off-site disposal facility shall be covered with a heavy duty tarpaulin secured to the top or sides of the container.

F. The Contractor shall promptly clean up any spills on haul routes, if they occur, with suitable equipment at no cost to the Project.

G. The Contractor shall keep all haul routes and public rights of way free of any site materials due to the Contractor's operations. To this end, all Contractor trucks shall be covered, and all vehicles shall be carefully loaded to prevent site materials from encountering the exterior truck surfaces.

H. The load weight shall be documented by the disposal facility scale Weigh Ticket. The Contractor shall submit copies of all disposal facility scale Weigh Tickets to the Engineer. Unsigned scale Weigh Tickets will be rejected and the Contractor will not be paid based on these weights.

I. Contractor shall prevent the tracking of site materials onto public rights-of-way.

J. Loaded trucks shall not leave the Site unless they shall arrive at the designated waste management facility before it closes. Loaded trucks shall discharge their loads at the designated waste management facility the same day they are loaded.

3.3 Permits

A. The Contractor shall obtain all required transportation permits for shipment of materials and debris.

(END OF SECTION 02 81 00)

SECTION 03 30 55

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 Description

A. This Section specifies requirements for concrete cast-in-place on the site.

1.2 Reference Standards

A. References herein are made in accordance with the following abbreviations and all work under this Section shall conform to the latest editions as applicable. This document is referenced by language "Standard Specifications", "Section", and "Subsection" in the following special provisions.

1. 2025 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges.
2. American Concrete Institute (ACI):
    a. 304.2R Placing Concrete by Pumping Methods
    b. 304R Guide for Measuring, Mixing, Transporting and Placing Concrete
    c. 305R Hot Weather Concreting
    d. 306R Cold Weather Concreting
    e. 347R Guide to Concrete Formwork for Concrete
    f. 325.9R Guide for Construction of Concrete Pavements and Concrete Bases
    g. SP-66 Detailing Manual
3. ASTM International (ASTM):
    a. A82 Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
    b. A1064 Standard Specification for Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
    c. A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
    d. C31 Standard Practice for Making and Curing Concrete Test Specimens in the Field
    e. C33 Standard Specification for Concrete Aggregates
    f. C94 Standard Specification for Ready-Mixed Concrete

g. C143 Standard Test Method for Slump of Hydraulic-Cement Concrete

h. C150 Standard Specification for Portland Cement

i. C171 Standard Specification for Sheet Materials for Curing Concrete

j. C231 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

k. C260 Standard Specification for Air-Entraining Admixtures for Concrete

l. C309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

m. C494 Standard Specification for Chemical Admixtures for Concrete

n. C1116 Standard Specification for Fiber-Reinforced Concrete

4. Concrete Reinforcing Steel Institute (CRSI): Manual of Standard Practice.
5. United States Department of Justice - Americans with Disabilities Act (ADA): ADA Accessibility Guidelines for Buildings and Facilities; 28 CFR Part 36.
6. State Regulations regarding Accessibility.

1.3 Quality Assurance

A. Work and materials for construction of the cement concrete walks shall conform to ACI 316R. Other cast-in-place concrete shall conform to ACI 301.

B. The Contractor shall maintain a copy of ACI SP 15 Field Reference Manual, on site.

C. Dimensions, locations, and details of equipment pads, anchors, supports, and similar features shown on the Plans are approximate. Manufacturer's approved Shop Drawings of equipment to be supported, anchored, or contained thereby shall be consulted for exact location, size, and details.

D. Concrete Strength Tests:

1. All concrete shall have a minimum strength of 5,000 psi at 28 days. If the 28-day strength falls below the minimum strength requirements, the concrete will be considered defective and shall be removed and replaced at the expense of the Contractor.

1.4 Submittals

A. Submit description of methods and sequence of placement for each type of specially-finished concrete, including description of methods and sequence of placement.

B. Submit manufacturer's product data for the following:

1. Form release agent.
2. Concrete coloring additive.
3. Preformed joint filler.
4. Concrete reinforcement specification data from manufacturer.

5. Stamp and imprinting tools, manufacturer's literature.
6. Manufacturer's literature for protective coating for sidewalks.
7. Detectable Warning including manufacturer's certification that product complies with ADA.

C. The Contractor shall submit concrete design mix at least 15 days prior to the start of concrete work. Concrete mix designs shall meet the requirements of a MassDOT Approved Mix Design.

1.5 Testing

A. The Owner may employ an independent testing laboratory to inspect and test cast-in-place concrete work.

B. When requested, Contractor shall prepare test specimens in accordance with ASTM C31, standard cylinder size 4-inch x 8 inch.

C. Testing of materials and installed work may occur at any time during progress of the work. Rejected materials and installed work shall be removed and replaced.

PART 2 - PRODUCTS

2.1 Steel Reinforcement

A. Steel reinforcing bars shall conform to AASHTO M31, Grade 60, deformed.

1. Bars employed as dowels shall be hot-rolled plain rounds.

B. Steel Wire: AASTHO M32, plain cold drawn steel.

C. Welded Wire Reinforcement: Welded wire reinforcement shall conform to the applicable requirements of ASTM A1064. Fabric reinforcement shall be furnished in flat sheets. Fabric reinforcement in rolls will not be permitted.

D. Supports for Reinforcement: Bolsters, chairs, and other devices for spacing, supporting, and fastening reinforcing bars, and welded wire fabric in place shall be wire bar-type supports complying with CRSI Manual.

1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI Class 1).

2.2 Portland Cement Concrete

A. Portland cement concrete shall conform to the following:

1. Maximum water-cement ratio shall be 0.45 conforming to ACI 316R.
2. Concrete shall be air-entrained type conforming to ASTM C94. Air content by volume shall be 6 percent $\pm$ 1.5 percent, tested in accordance with ASTM C260.

3. Slump of concrete shall not be less than 3 inches nor greater than 4 inches, determined in accordance with ASTM C143.
4. Cement for concrete shall be a Portland cement conforming to ASTM C150, Type I or II. Only one color of cement, all of the same manufacturer, shall be used for the work. Type III cement shall be used only with the prior approval of the Engineer.
5. Fine and coarse aggregates for concrete shall conform to ASTM C33.
6. Concrete shall contain a water reducing agent to minimize cement and water content of the concrete mix at the specified slump. Water reducing agent shall conform to ASTM C494, Type A.
7. Concrete shall contain no calcium chloride or admixtures containing calcium chloride. No admixtures other than those specified shall be used in the concrete without the specific written permission of the Engineer.

2.3 Concrete Aggregates

A. Fine Aggregates: Fine aggregates shall conform to ASTM C33, part 6.

B. Coarse Aggregates: Coarse aggregates shall conform to ASTM C33, Parts 9 through 11 and Tables 2 and 3, with the following Class designations:

1. Class 1S: For footings and foundations not exposed to the weather.
2. Class 4S: For pavements, driveways, curbs, walkways, sidewalks, and retaining walls that are exposed to the weather.
3. Class 1N: For pavements, driveways, curbs, walkways, sidewalks, and retaining walls that are not exposed to the weather.

C. Exposed Aggregate: Exposed aggregate for ADA curb ramps shall be selected, hard, durable, washed rounded stones free of deleterious reactivity to cement with graded sizes between 1/2 to 3/4 inch diameter nominal sieves.

2.4 Curing Materials for Uncolored Concrete

A. Curing shall be accomplished by the following methods:

1. Moist curing with burlap covering.
2. Curing paper, nonstaining, fiber reinforced laminated Kraft bituminous product conforming to ASTM C171. Four mil polyethylene sheeting may be substituted for curing paper.
3. Curing compound, a resin-base, white pigmented compound conforming to ASTM C309, Type 2.

2.5 Expansion Joints

A. Expansion joint filler shall be preformed, nonbituminous type conforming to ASTM D1752, Type II.

1. Premolded filler shall be one piece for the full depth and width of the joint.

B. Smooth dowel shall be hot rolled plain steel dowel bonded at one end and operating in smooth close fitting sleeve (of same material) at the other end.

2.6 Control Joints

A. Joint filler to be polyethylene foam with manufacturer's recommended sealant.

2.7 Forms

A. Cylindrical Forms: Sonotube Fibre Forms, wax-impregnated strippable forms manufactured by Sonoco Products Company, General Products Division, ABS or PVC plastic reusable forms, or approved equivalent.

B. Forms for Exposed Finish: Plywood, metal, metal-framed plywood faced, or other acceptable panel materials. Plywood shall conform to U.S. Product Standard PS-1 and APA Graded B-B (Concrete Form) Class I Exterior Grade plywood or B-B or A-C Class I high density overlay concrete form plywood. Formwork materials shall produce smooth, continuous, straight and level surfaces.

C. Forms for Unexposed Finish: Plywood, lumber, or metal, with lumber dressed on at least two edges and one side.

D. Form Ties: Prefabricated, adjustable length galvanized steel snap-off ties, with brackets, cones, cornerlocks, and other accessories as necessary.

E. Form Release Agent: Commercial formulation compounds that will not bond with, stain or adversely affect concrete.

F. Imprinting Tools: Mats and tools used to stamp projecting texture and patterns onto plastic concrete surfaces and which shall be specifically designed with rigid back supports to enable a clean, sharp, stamping image. Stamps for curb ramps shall be designed to meet ADA detectable warning requirements.

2.8 Fibrous Reinforcing

A. Material shall meet ASTM C1116 and shall be as manufactured by NyCon Incorporated, or approved equal.

B. Mix fibrous reinforcement in accordance with manufacturer's instructions including product data and technical bulletins.

1. Add fibrous reinforcement to concrete mix at the concrete batch facility.

2. Adding and mixing fibrous reinforcement at the job site will not be allowed.

C. Provide job mix design data to show concrete mix will attain specified strength requirements.

2.9 Exposed Concrete Protective Coating

A. Protective Coating shall be silane-siloxane product.

2.10 Detectable Warnings

A. Detectable warnings shall meet ADA and State Standards, whichever is more stringent, and shall be ADA Solutions Cast-in-Place Replaceable Tactile Warning Surface Tiles Federal Yellow (or approved equal).

PART 3 - EXECUTION

3.1 Preparation of Subgrade

A. Excavation required in pavement subgrade shall be completed before fine grading and final compaction of subgrade are performed. Where excavation must be performed in completed subgrade, subbase, base, or pavement, subsequent backfill and compaction shall be performed as required by the Engineer and in accordance with these Specifications

B. Materials shall not be stored or stockpiled on subgrade.

C. Prepared subgrade will be inspected by the Engineer. Subgrade shall be approved for installation of the gravel base course. Disturbance to subgrade caused by inspection procedures shall be repaired.

3.2 Base Course

A. Material shall be placed in lifts no more than 6 inches thick, compacted measure. Each lift shall be separately compacted to specified density.

1. Material shall be placed adjacent to structures only after they have been set to required grade.
2. Rolling shall begin at sides and progress to center of crowned areas, and shall begin on low side and progress toward high side of sloped areas. Rolling shall continue until material does not creep or wave ahead of roller wheels.
3. Surface irregularities which exceed 1/2 inch as measured by means of a 10 foot long straightedge shall be regraded and recompacted.

B. Base course shall be compacted at optimum moisture content to not less than 95 percent of maximum density as determined by ASTM D1557.

C. The base course shall be kept clean and uncontaminated. Less select materials shall not be permitted to become mixed with the base course material.

3.3 Steel Reinforcement

A. Before being placed in position, reinforcing steel shall be thoroughly cleaned of loose mill and rust scale, dirt, ice, and other foreign material which may reduce the bond between the concrete and reinforcing. Where there is delay in placing concrete after reinforcement is in place, bars shall be re-inspected and cleaned when required.

B. Any bar showing cracks after bending shall be discarded.

C. Unless otherwise shown on the Plans, reinforcing shall extend within 2 inches of formwork and expansion joints. Reinforcing shall continue through control joints. Adjacent sheets of fabric reinforcing shall lap 6 inches.

D. After forms have been coated with form release agent, but before concrete is placed, reinforcing steel shall be securely wired in the required position and shall be maintained in that position until concrete is placed and compacted. Chair bars and supports shall be installed in a number and arrangement approved by the Engineer.

3.4 Forms

A. General: Design, erect, support, brace, and maintain formwork to support vertical, lateral, static, and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances and surface irregularities complying with the following ACI 347 limits.

1. Provide Class A tolerances for concrete surfaces exposed to view.

2. Provide Class C tolerances for other concrete surfaces.

B. Construct forms to provide for openings, offsets, sinkages, keyways, recesses, moldings, chamfers, blocking, screeds, bulkheads, anchorages, and inserts, and other features required for the work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent cement paste from leaking.

C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Kerf wood inserts for forming keyways, reglets, recesses, and other features for easy removal.

D. Chamfer exposed corners and edges, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

E. Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before placing concrete. Re-tighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

3.5 Installing Embedded Items

A. General: Set and build into formwork the anchorage devices and other embedded items required for work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.

B. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.6 Preparing Form Surfaces

A. Coat contact surfaces of forms with an approved, nonresidual, low-VOC form-coating compound before placing reinforcement.

3.7 Concrete Placing

A. Equipment, methods of mixing and placing, and precautions to be observed as to weather, and condition of base shall meet the requirements of ACI 316R.

B. The Engineer shall be notified of scheduled concrete placement sufficiently in advance of start of operation to allow preliminary inspection of the work, including subgrade, forms, and reinforcing steel.

C. Work shall not be performed during rainy weather or when temperature is less than 40°F. (4.4°C.).

D. Adjacent work shall be protected from stain and damage. Damaged and stained areas shall be replaced or repaired to equal their original conditions.

E. Existing concrete, earth, and other water-permeable material against which new concrete is to be placed shall be thoroughly damp when concrete is placed. There shall be no free water on surface.

F. Concrete which has set or partially set, before placing shall not be used. Retempering of concrete will not be permitted.

G. Concrete shall be thoroughly vibrated, or otherwise consolidated to secure a solid and homogeneous mass, thoroughly worked around reinforcement and into corners of forms.

H. When joining fresh concrete to concrete which has attained full set, latter shall be cleaned of foreign matter, and mortar laitance shall be removed by chipping and washing. Clean, roughened base surface shall be saturated with water, but shall have no free water on surface. A coat of 1:1 cement-sand grout, approximately 1/8 inch thick, shall be well scrubbed into the thoroughly dampened concrete base. New concrete shall be placed immediately, before grout has dried or set.

3.8 Finishing

A. Concrete surfaces shall be screeded and finished true to line and grade, and free of hollows and bumps. Surface shall be dense and smooth.

1. Finished concrete surface for concrete subbases shall be wood floated to a slightly rough surface. Surface shall not deviate more than 1/4 inch in 10 feet.

2. Finished concrete surfaces shall be wood floated and steel troweled, or broom finished, to a uniform surface. Surface shall not deviate more than 1/8 inch in 10 feet.

B. Horizontal surfaces of concrete surfaces which will be exposed shall be given a light broomed finish, with direction of grooves in concrete surface perpendicular to length of concrete band, slab, or pad. After concrete has set sufficiently to prevent coarse aggregate from being torn from surface, but before it has completely set, brooms shall be drawn across the surface to produce a pattern of small parallel grooves. Broomed surface shall be uniform, with no smooth, unduly rough or porous spots, or other irregularities. Coarse aggregate shall not be dislodged by brooming operation.

C. Immediately following finishing operations, arises at edges and both sides of expansion joints shall be rounded to a 1/4- inch radius. Control joints to be tooled shall be scored into slab surface with scoring tool. Adjacent edges of control joint shall at same time be finished to a 1/4-inch radius.

D. Where finishing is performed before end of curing period, concrete shall not be permitted to dry out, and shall be kept continuously moist from time of placing until end of curing period, or until curing membrane is applied.

E. Sidewalks, walkways, accessible routes, and ramps shall be constructed and finished in accordance with the Americans with Disabilities Act (ADA) and state and local requirements. Provide protective coating in accordance with manufacturer's recommendations.

3.9 Stamping

A. Mat Stamping: While initially finished concrete is plastic accurately align and place stamp mats in sequence. Uniformly load mats and press into concrete to produce requirement imprint pattern and depth of imprint on concrete surface. Remove stamp mats immediately. Hand stamp edges and surfaces unable to be imprinted using stamp mats.

B. Tool Stamping: While initially finished concrete is plastic, cover surface with polyethylene film, stretch taut to remove wrinkles, lap sides and ends 3 inches (75 mm), and secure to edge forms. Lightly broom surface to remove air bubbles. Accurately align and place stamp tools in sequence and tamp into concrete to produce required imprint pattern and depth of imprint on concrete surface. Remove stamp tools immediately. Hand stamp edges and surfaces unable to be imprinted by stamp tools. Unroll and remove polyethylene film immediately after tool stamping.

3.10 Curing

A. Concrete shall be kept continuously damp from time of placement until end of specified curing period or cured by other methods. Water shall not be added to surface during floating and troweling operations, and not earlier than 24 hours after concrete placement. Between finishing operations, surface shall be protected from rapid drying by a covering of waterproofing paper. Surface shall be damp when the covering is placed over it, and shall be kept damp by means of a fog spray of water, applied as often as necessary to prevent drying, but not sooner than 24 hours after placing concrete. None of the water so applied shall be troweled or floated into surface.

B. Concrete surfaces shall be cured by completely covering with curing paper or application of a curing compound.

1. Concrete cured using waterproof paper shall be completely covered with paper with seams lapped and sealed with tape. Concrete surface shall not be allowed to become moistened between 24 and 36 hours after placing concrete. During curing period, concrete surface shall be checked frequently, and sprayed with water as often as necessary to prevent drying, but not earlier than 24 hours after placing concrete.

2. Concrete cured with a curing compound shall have the compound applied at a rate of 200 square feet per gallon, in two applications perpendicular to each other.

3. Curing period shall be seven (7) days minimum.

C. Only if additional protection is absolutely required, the surface should remain uncovered after the seven (7) day period for at least four (4) days, after which time new and unwrinkled non-staining reinforced waterproof Kraft curing paper may be used.

3.11 Expansion Joints

A. Expansion joints shall be 1/2 inch wide and located to provide a maximum spacing of 50 feet between joints or where shown on the Drawings. Expansion joints shall be troweled in the concrete to required width with preformed joint filler in place. Joint filler shall extend the full depth of the slab and full length of the expansion joint.

1. For concrete walks, pavements, and pads, depth of joint filler shall be placed to form a 1-1/4 inch deep recess for sealant and backer rod below finished concrete surface.

2. Use of multiple pieces to make up required depth and width of joint will not be permitted.

3.12 Construction Joints

A. Construction joints shall be placed whenever placing of concrete is suspended for more than 30 minutes.

1. Butt joint with dowels or use a thickened edge joint if construction joints occur at control joint locations.

2. Keyed joints with tie-bars shall be used if the joint occurs at any other location.

3.13 Control Joints

A. Control joints shall be tooled into the concrete slab, with 3-inch wide border and troweled edges, in pattern as shown on the Drawings. If no pattern is shown, then pattern shall result in square shape with a maximum area of 36 square feet. Joints shall be made after concrete is finished and when the surface is stiff enough to support the weight of workmen without damage to the slab, but before slab has achieved its final set.

B. Scoring shall cut into slab surface at least 1 inch, but in no case not less than 25 percent of slab depth.

3.14 Cold Weather Concreting

A. Materials for concrete shall be heated when concrete is mixed, placed, or cured when the mean daily temperature is below 40°F. or is expected to fall to below 40°F. within 72 hours. The concrete, after placing, shall be protected by covering, heat, or both.

B. Details of handling and protecting of concrete during freezing weather shall be subject to the approval and direction of the Engineer. Procedures shall be in accordance with provisions of ACI 306R.

3.15 Hot Weather Concreting

A. Concrete just placed shall be protected from the direct rays of the sun and the forms and reinforcement just prior to placing shall be sprinkled with cold water. Every effort shall be made to minimize delays which will result in excessive mixing of the concrete after its arrival on-site.

B. During periods of excessively hot weather (95°F., or above), ingredients in the concrete shall be cooled with cold mixing water to maintain the temperature of the concrete at permissible levels in accordance with the provisions of ACI 305R. Any concrete with a temperature above 95°F., when ready for placement, will be rejected.

C. Temperature records shall be maintained throughout the period of hot weather giving air temperature, general weather conditions (calm, windy, clear, cloudy, etc.) and relative humidity. Records shall include checks on temperature of concrete when delivered to Project site and after placing in forms. Data should be correlated with the progress of the work so that conditions surrounding the construction of any part of the structure can be ascertained.

3.16 Protection of Concrete Surfaces

A. Concrete surfaces shall be protected from traffic or damage until surfaces have hardened sufficiently.

3.17 Detectable warnings

A. Detectable warnings shall be install at locations as shown on plans and per manufacture's recommendations.

(END OF SECTION 03 30 55)

SECTION 03 41 00

PRECAST CONCRETE STRUCTURES

PART 1 – GENERAL

1.1 Summary

A. This section includes the performance criteria, materials, production, and erection of structural precast concrete for the project. The work performed under this section includes all labor, material, equipment, related services, and supervision required for the manufacture and erection of the structural precast concrete work shown on the Drawings. This includes but is not limited to the following:

1. Structural design, in compliance with applicable Precast/ Concrete Institute (PCI) and Occupational Safety and Health Administration (OSHA) requirements. Design of all connections, stresses incurred during manufacture, lifting, handling and erection, adequacy of connections to assure structural integrity, sufficient tolerances and convenience for erection.
2. Precast highway guardrail transitions.
3. Manufacture, delivery, storage, transport, unloading, erection and attachment of all plant-precast structural concrete units.
4. Furnishing and installation of all items of hardware such as loose angles, inserts, reglets, complete bolt assemblies, clip angles, miscellaneous steel, shims, nuts, etc. as required for the manufacture, handling, erection, and attachment of all precast structural concrete units.
5. Materials and labor to prepare the surface receiving the precast concrete such as grout pads, leveling bolts, shims, etc. as required to place the precast structural concrete units.
6. Preparation and submission of Design and Shop Drawings sealed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts.
7. Preparation and submission of manufacturer's quality control program and production schedule.
8. Protection of all plant-precast structural concrete work during construction.

1.2 References

A. Erection, attachment, and grouting of precast structural concrete shall be performed under the direction of a supervisor with proven experience in similar work.

B. The materials and work shall conform to the latest edition and latest addenda thereto of the following codes, standards and documents.

1. American Society for Testing and Materials (ASTM)

a. ASTM A82 Standard Specification for Steel Wire, Plain, for Concrete Reinforcement

b. ASTM A185 Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement

c. ASTM A1064 Standard Specification for Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

d. ASTM A615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

e. ASTM C33 Concrete Aggregates

f. ASTM C94 Ready Mix Concrete

g. ASTM C150 Portland Cement

h. ASTM C171 Standard Specification for Sheet Materials for Curing Concrete

i. ASTM C260 Air-Entraining Admixtures for Concrete

j. ASTM C494 Chemical Admixtures for Concrete

k. ASTM C1059 Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete

l. ASTM C1107 Packaged Dry, Hydraulic-Cement Grout (Non-shrink)

m. ASTM D41 – Standard Specification for Asphalt Primer Used in Roofing, Damp-proofing, and Waterproofing.

2. American Concrete Institute (ACI)

a. ACI SP-66 Detailing Manual

b. Maintain copy of ACI SP 15 Field Reference Manual on site.

3. Precast/ Concrete Institute (PCI)

a. PCI MNL-116 Quality Control for Plants and Production of Structural Precast Concrete Products

b. PCI MNL-120 Design Handbook – Precast and Prestressed Concrete

1.3 Submittals

A. The Contractor shall prepare and provide shop drawings, stamped by a Professional Engineer licensed in the Commonwealth of Massachusetts.

B. Shop drawings for all Precast Concrete Bridge Elements shall include the following:

1. Description of methods and sequence of placement of each Element.

2. Locations and details of all the lifting devices, including supporting calculations, type, and amount of any additional reinforcing required for lifting. Design all lifting devices based on the no cracking criteria in Chapter 8 of the PCI Design Handbook (seventh edition).

3. Locations of construction joints, utility openings, and all erection information.

4. Buoyancy calculations, as needed, prepared by a Structural Engineer licensed in the Commonwealth of Massachusetts.
5. Minimum compressive strength attained prior to handling the precast elements.

C. The Contractor shall not order materials or begin work until receiving final approval of the shop detail drawings. Fabrication of any components shall not commence prior to the approval of the calculations and shop drawings by the Engineer.

D. The Contractor shall ensure that each Shop Drawing, Working Drawing, or Sketch submitted to the Engineer has been certified by the personal legible signature of the Professional Engineer in charge of work for the manufacturer and the initial of the individual actually preparing the Shop Drawing. All submitted Shop Drawings shall be signed and sealed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts.

E. Product data for each type of product indicated.

F. Design mixes for each concrete mix.

G. Mock-ups of the precast concrete elements shall be completed in full width x full height x 2 foot long samples that can be placed against various surfaces for comparison to existing concrete color, texture and other features. Individual mock-ups shall be completed for each element that will be cast-in-place that needs to match historic concrete, including, but not limited to, the precast concrete railing cap and either the end pilaster or interim pilaster cap.

   Mock-ups shall be completed utilizing the contractor's proposed methods and follow the latest submitted shop drawings. Mock-ups shall be completed as many times as necessary to satisfy the engineer the proposed materials and methods match the surrounding concrete color, texture, and all other aesthetic requirements. Mock-ups shall be completed with every resubmission of the shop drawings. The mock-ups are subject to Town of Winchester and the Engineer's approval.

   Approved shop drawings and material submissions are not an approval of the mock-up. The approved shop drawings and material submissions may have to be resubmitted following the results of the mock-up.

PART 2 – PRODUCTS

2.1 General

A. All materials shall comply with the Specifications, Standards, and Codes referenced within this Section.

B. Concrete shall have a minimum strength of 5,000 PSI in 28 days, unless otherwise shown on the plans.

C. The manufacturer shall be an approved Precast/ Concrete Institute (PCI) contractor.

D. Precast members containing visible hairline cracks and are less than 0.02 inches in width, may be accepted, except that cracks larger than 0.005 inches in width for surfaces exposed to the

weather shall be repaired. Repairs to precast members with cracks greater than 0.002 inches in width shall be approved by the Engineer. Any precast member that is structurally impaired or contains honeycombed sections deep enough to expose reinforcing will be rejected.

2.2 Reinforcement

A. Reinforcing Steel: ASTM A615, Grade 60, deformed billet steel bars.

B. Steel Welded Wire Fabric: ASTM A185, plain type, flat sheets.

2.3 Concrete Materials

A. Portland Cement: ASTM C150, Type I or Type II.

B. Fine and Coarse Aggregates: ASTM C33.

C. Water: Clean and not detrimental to concrete.

2.4 Admixtures

A. Air Entraining Admixture: ASTM C260.

B. Water Reducing Admixture: ASTM C494, Type A.

C. Provide concentrated pigments specially processed for mixing into concrete and complying with ASTM C979. Color admixtures containing carbon black are not acceptable.

D. Prohibited Admixtures: Calcium chloride, thiocyanates or admixtures containing more than 0.05 percent chloride ions shall not be used.

2.5 Accessories

A. Bonding Agent: Sika Armatec 110 EpoCem or equivalent.

B. Non Shrink Grout: Five Star Grout by U.S. Grout Corp., Masterflow 713 by Master Builders or SikaGrout 212 by Sika or equivalent.

C. Dovetail Anchor Slots: Minimum 20 gage thick galvanized steel; 1 inch wide back, 1 inch deep, 8 inch throat.

2.6 Grout Materials

A. Sand-Cement Grout: Portland cement, ASTM C 150, Type I or II, and clean, natural sand, ASTM C 144. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

B. Nonemetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, Portland cement, shrinkage-compensating agent, plasticizing and water-reducing agents, complying with ASTM C 1107, of consistency suitable for application.

PART 3 – EXECUTION

3.1 General

A. Installation and workmanship shall conform to the recommendation of all applicable American Concrete Institute, Portland Cement Association, and the Concrete Reinforcing Steel Institute (CRSI) guidelines.

3.2 Surface Repair

A. Prior to erection, and again after installation, precast members shall be checked for damage, such as cracking, spalling and honeycombing. As directed by the Engineer, precast members that do not meet the surface finish requirements specified herein shall be repaired, or removed and replaced with new precast members.

3.3 Formwork Erection

A. Erect in accordance with the approved Shop Drawings. Brace precast members, unless design calculations submitted with the Shop Drawings indicate bracing is not required. Follow the manufacturer's recommendations for maximum construction loads. Place precast members level, plumb, square, and true within tolerances. Align member ends.

3.4 Anchorage

A. Provide anchorage for fastening work in place. Conceal fasteners where practicable. Make threaded connections up tight and nick threads to prevent loosening.

3.5 Openings

A. Holes or cuts requiring reinforcing to be cut, which are not indicated on the approved shop drawing, shall only be made with the approval of the Engineer and the precast manufacturer. Drill holes less than 12 inches in diameter with a diamond tipped core drill.

3.6 Grouting

A. Clean and fill indicated keyways between precast members and other indicated areas, solidly with non-shrink grout. Provide reinforcing where indicated. Remove excess grout before hardening. Cover grouted exterior surfaces with sealant.

(END OF SECTION 03 41 00)

SECTION 31 10 01

CONCRETE REPAIRS

PART 1 - GENERAL

1.1 Description

A. This Section specifies requirements for scarifying reinforced concrete surfaces.

B. The work shall include furnishing all labor, materials, equipment and incidentals for:

1. Removal and satisfactory disposal of deteriorated reinforced concrete of the existing culvert walls and wingwalls as shown on the Plans and as directed by the Engineer. Deteriorated concrete shall be removed to the limits of sound concrete.

2. Cleaning of the surface of the exposed concrete and reinforcing steel, furnishing and placing reinforcing, applying a bonding agent to the repair surfaces, and filling the damaged areas with a two-component polymer cementitious repair mortar (shallow repairs) or cement concrete (deep repairs) as specified below.

1.2 References

A. 2025 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges. This document is referenced by language “Standard Specifications”, “Section”, and “Subsection” in the following special provisions.

B. ACI Report 201.1R-08 Guide for Making a Condition Survey of Concrete Service.

C. ACI Report 364.1R-94 Guide for Evaluation of Concrete Structures Prior to Rehabilitation.

1.3 Site Conditions

A. Site conditions existing during the bidding period will be maintained by the Owner insofar as practical.

B. Actual site condition variations that differ from those of the bidding period and which affect relevant operations shall be brought to the attention of the Owner prior to the commencement of any site work.

1.4 Submittals

A. The Contractor shall submit the following information to the Engineer for review before commencing work:

1. Work Plan including operational sequence and all other items deemed necessary by the Engineer for the satisfactory completion of work.

a. Schedule and sequence for removal of relative deteriorated reinforced concrete.

b. A detailed description of methods and equipment to be used for each operation.

c. A detailed description of methods of cleaning and all other provisions necessary to remove any dirt, debris, oil and/or foreign substances without the use of cleaning solvents and without damaging existing concrete. Clean water that is free from chlorides and other contaminants shall be utilized.

d. Proposed measures for property and environmental protection, and dust, debris and noise control.

2. Product Data Sheets and appropriate Material Safety Data Sheets for each type of repair product

3. Three job references for the subcontractor who is proposed to perform the work specified herein, showing where they have successfully patched similar surfaces.

1.5 Quality Control

A. The Contractor shall comply with all conditions included with the Town of Winchester Conservation Commission Order of Conditions (Appendix A).

B. The Contractor shall perform scarification of reinforced concrete surfaces in a manner that does not disturb existing structures, utilities, or other facilities not indicated to be removed.

1.6 Dust and Debris Control

A. The Contractor shall minimize the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in dangerous or otherwise objectionable conditions such as, but not limited to, ice, flooding, or pollution.

PART 2 - PRODUCTS

2.1 Cement Concrete Mix Design

A. Cement concrete materials shall conform to the relevant provisions of Subsection 901 of Division II of the *Standard Specifications* and comply with *Contract Provision 03 30 55 – Cast-in-Place Concrete*. The following cement concrete mix designs shall be used to complete the project:

1. 5000 PSI, 3/8 IN., 710 Cement Concrete

B. Cement concrete shall be used for Partial Depth Repairs only.

2.2 Steel Reinforcement for Structures – Epoxy Coated

A. All reinforcing steel and support devices shall be epoxy coated and shall conform to the relevant provisions of Subsection M8.01.07 of Division III of the *Standard Specifications*.

2.3 Bonding Agents

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Product that consists of water-insensitive epoxy adhesive, Portland Cement, and water-based solution of corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.

B. Epoxy Bonding Agent: Product shall be a two-component, epoxy-resin bonding system for application to Portland Cement concrete and meets the requirements of ASTM, Type II, grade and class as suitable for job conditions.

2.4 Cementitious Mortar for Patching

A. Cementitious mortar materials shall conform to the relevant provisions of Subsection 901 of Division II of the *Standard Specifications*.

B. Patching mortar shall be used for Shallow Depth Repairs only.

PART 3 - EXECUTION

3.1 5000 psi, 3/8 IN., 710 HP Cement Concrete

A. Work under this heading shall conform to the relevant provisions of Subsection 901 of Division II of the *Standard Specifications* and comply with *Contract Provision 03 30 55 – Cast-in-Place Concrete*. Work shall consist of furnishing and installing standard concrete for the following bridge elements:

1. Partial Depth Concrete Repairs

3.2 Steel Reinforcement for Structures - Epoxy Coated

A. Steel for structures shall conform to Section 910 of the Standard Specifications and the following:

1. Mechanical reinforcing bar splicers shall be used as necessary at construction joints and other locations as indicated on the Plans. Mechanical reinforcing bar splicers shall be considered as incidental to the work involved in furnishing and placing of reinforcing steel. All mechanical reinforcing bar splicers shall be chosen from the MassDOT Qualified Construction Materials List and submitted to the Engineer for approval.

2. Accessories supporting epoxy coated bars, including mechanical reinforcing bar splicers, shall also be epoxy coated. Specified clearances, cover requirements, and all other reinforcing steel geometry requirements shall be maintained. Individual and continuous slab bolsters and chairs shall be of type to suit various conditions encountered and must be capable of supporting a 300-lb load without damage or permanent distortion.

3. No materials shall be fabricated or shipped prior to approval of the shop drawings by the Engineer.

3.3 Examination

A. The Contractor shall notify the Engineer seven days in advance when areas of deteriorated reinforced concrete will be located.

B. The Contractor shall perform their own investigation and shall evaluate and mark out the surfaces of concrete to determine areas for repair. Methods for evaluation shall include non-destructive methods, such as visual observations. The Contractor is referenced to ACI Report 201.1R-08 'Guide for Making a Condition Survey of Concrete Service' and ACI Report 364.1R-94 'Guide for Evaluation of Concrete Structures Prior to Rehabilitation' regarding evaluation methods.

C. Locate at least three reinforcing bars using a pachometer, and drill test holes to determine depth of cover. Calibrate pachometer, using depth of cover measurements, and verify depth of cover in removal areas using pachometer.

D. Prior to concrete removal, the Contractor shall provide the Engineer clear access to the areas designated for repair. The Engineer shall be granted access to perform an inspection of the areas and will approve and/or designate the areas where concrete removal and repair shall be required. The Contractor will include any costs related to the allowance for this inspection in the general cost of work.

3.4 Concrete Cleaning

A. Prior to performing any concrete repairs, clean the exposed faces of the concrete elements by power washing with clean water, free from chlorides or other contaminants, progressing from the top of the structure downward.

B. Cleaning shall remove all dirt, debris, staining, mold, algae, and any other foreign material.

C. Concrete cleaning shall remove all loose, flaking, peeling or fraying concrete materials from the existing structure. All concrete debris shall be collected for disposal

3.5 Concrete Repairs

A. Removal of Deteriorated Reinforced Concrete

1. Protect people, motor vehicles, equipment, surrounding construction, project site, plants and surrounding building from injury resulting from concrete repair work.

2. All deteriorated concrete designated for removal shall be removed within the limits agreed upon by the Contractor and the Engineer. The lateral limits of each area to be repaired shall be delineated and suitably marked by the Contractor and approved by the Engineer.

3. Scarify areas indicated for removal to a depth of at least ½ inch. Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcement.

4. Remove deteriorated and delaminated concrete by breaking up and dislodging from reinforcement.

5. Remove additional concrete, if necessary, to provide a depth of removal at least ½ inch over entire removal area.

6. Where half of more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar and to provide at least a ¾ inch clearance around bar.
7. Test areas where concrete has been removed by tapping with hammer and remove additional concrete until unsound and disbanded concrete is completely removed.
8. Provide fractured aggregate surfaces with a profile of at least 1/8 inch that is approximately perpendicular or parallel to original concrete surfaces. On vertical surfaces, make top and bottom surfaces level, unless otherwise directed.
9. Thoroughly clean removal areas of loose concrete, dust, and debris

B. Reinforcing Bar Preparation

1. Remove loose and flaking rust from reinforcing bars by abrasive blast cleaning until only tightly bonded light rust remains.
2. Where section loss of reinforcing bar is more than 25 percent, or 20 percent in 2 or more adjacent bars, cut bars and remove and replace as directed by the Engineer. Remove additional concrete as necessary to provide at least ¾ inch clearance at existing and replacement bars. Splice replacement bars to existing bars according to ACI 318, by lapping, welding or using mechanical couplings.

C. Surface Preparation for Corrosion-Inhibiting Treatment

1. Clean concrete by low-pressure water cleaning, detergent scrubbing, or sand blasting to remove dirt, oils, films, and other materials detrimental to treatment application. Allow surface to dry before applying corrosion-inhibiting treatment.

D. Application

1. General: Comply with manufacturer's written instructions and recommendations for application of products, including surface preparation.
2. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Apply to reinforcing bars and concrete by stiff brush or hopper spray according to manufacturer's written instructions. Apply to reinforcing bars in two coats, allowing first coat to dry two to three hours before applying second coat. Allow to dry before placing patching mortar or concrete.
3. Epoxy Bonding Agent: Apply to reinforcing bars and concrete by brush, roller, or spray according to manufacturer's written instructions, leaving no pinholes or other uncoated areas. Apply to reinforcing bars in at least two coats, allowing first coat to dry before applying second coat. Apply patching mortar or concrete while epoxy is still tacky. If epoxy dries, recoat before placing patching mortar or concrete.
4. Latex Bonding Agent, Type II: Mix with Portland Cement and scrub into concrete surface according to manufacturer's written instructions. Apply patching mortar or concrete while bonding agent is still wet. If bonding agent dries, recoat before placing patching mortar or concrete.

5. Latex Bonding Agent, Type I: Apply to concrete by brush roller or spray. Allow to dry before placing patching mortar or concrete.
6. Mortar Scrub-Coat: Dampen repair area and surrounding concrete 6 inches beyond repair area. Remove standing water and apply scrub-coat with a brush, scrubbing it into surface and thoroughly coating repair area. If scrub-coat dries, recoat before applying patching mortar or concrete.
7. Repair material for Shallow Depth Repairs, as identified in the plans, shall be trowel applied Patching Mortar. Repair material for Partial Depth Repairs, as identified in the plans, shall be Concrete. Grouted Preplaced Aggregate Concrete may be used for Partial Depth Repairs in locations where Concrete cannot be placed, as approved by the engineer. The Grouted Preplaced Aggregate Concrete shall be pumped. Repair material shall be approved by the engineer for each repair location.
8. Patching Mortar: Use for Shallow Depth Repairs only. Unless otherwise recommended by manufacturer, apply as follows:
    a. Apply bonding agent to reinforcement and concrete substrate.
    b. Wet substrate thoroughly and then remove standing water. Scrub a slurry of neat patching mortar mixed with latex bonding agent into substrate, filling pores and voids.
    c. Place patching mortar by troweling toward edges of patch to force intimate contact with edge surfaces. For large patches, fill edges first and then work toward center, always troweling toward edges of patch. At fully exposed reinforcing bars, force patching mortar to fill space behind bars by compacting with trowel from sides of bars.
    d. For vertical patching, place material in lifts of not more than 2 inches nor less than 1/48inch. Do not feather edge.
    e. For overhead patching, place material in lifts of not more than 1-1/2 inches nor less than 1/8 inch. Do not feather edge.
    f. After each lift is placed, consolidate material and screed surface.
    g. Where multiple lifts are used, score surface of lifts to provide a rough surface for application of subsequent lifts. Allow each lift to reach final set before placing subsequent lifts.
    h. Allow surfaces of lifts that are to remain exposed to become firm and then finish to a smooth surface with a broom or burlap drag.
    i. Wet-cure cementitious patching materials, including polymer-modified, cementitious patching materials, for not less than seven days by water-fog spray or water-saturated absorptive cover.
9. Dry- Pack Mortar: Use for deep cavities and where indicated. Unless otherwise recommended by manufacturer, apply as follows:
    a. Apply bonding agent to reinforcement and concrete substrate.
    b. Provide forms where necessary to confine patch to required shape.

c. Wet substrate and forms thoroughly and then remove standing water.

d. Place dry-pack mortar into cavity by hand, and compact into place with a hardwood drive stick and mallet or hammer. Do not place more material at a time than can be properly compacted. Continue placing and compacting until patch is approximately level with surrounding surface.

e. After cavity is filled and patch is compacted, trowel surface to match profile and finish of surrounding concrete. A thin coat of patching mortar may be troweled into the surface of patch to help obtain required finish.

f. Wet-cure patch for not less than seven days by water-fog spray or water-saturated absorptive cover.

10. Concrete: Place according to *Contract Provision 03 30 55 – Cast-in-Place Concrete* and as follows:

    a. Apply bonding agent to reinforcement and concrete substrate.

    b. Use vibrators to consolidate concrete as it is placed.

    c. At unformed surfaces, screed concrete to produce a surface that when finished with patching mortar will match required profile and surrounding concrete.

    d. Where indicated place concrete by form and pump method.

        i. Design and construct forms to resist pumping pressure in addition to weight of wet concrete. Seal joints and seams in forms and junctions of forms with existing concrete.

        ii. Pump concrete into place, releasing air from forms as concrete is introduced. When formed space is full, close air vents and pressurize to 14 psi.

    e. Wet-cure concrete for not less than seven days by leaving forms in place or keeping surfaces continuously wet by water-fog spray or water-saturated absorptive cover.

    f. Fill placement cavities with dry-pack mortar and repair voids with patching mortar. Finish to match surrounding concrete.

11. Grouted Preplaced Aggregate Concrete: Use for vertical repairs and place as follows:

    a. Design and construct forms to resist pumping pressure in addition to weight of wet grout.

    b. Seal joints and seams in forms and junctions of forms with existing concrete.

    c. Apply bonding agent to reinforcement and concrete substrate.

    d. Place aggregate in forms, consolidating aggregate as it is placed. Pack aggregate into upper areas of forms to achieve intimate contact with concrete surfaces.

    e. Fill forms with water to thoroughly dampen aggregate and substrates. Drain water from forms before placing grout.

f. Pump grout into place at bottom of preplaced aggregate, forcing grout upward. Release air from forms at top as grout is introduced. When formed space is full and grout flows from air vents, close vents and pressurize to 14 psi.

g. Wet-cure concrete for not less than seven days by leaving forms in place or keeping surfaces continuously wet by water-fog spray or water-saturated absorptive cover.

h. Repair voids with patching mortar and finish to match surrounding concrete

12. Finishing of concrete rehabilitation:

a. Final textures and appearance shall match the existing and surrounding concrete and shall be approved during the review of the mock-ups.

b. Finishing of the concrete surface shall be accomplished through use of various formwork materials, hand tools utilized during the initial setting of the concrete, and/or through mechanical treatments to the surface of the concrete after final set.

(END OF SECTION 31 10 01)

SECTION 31 00 00

EARTHWORK

PART 1 – GENERAL

1.1 Description

A. Provide facilities, labor, materials, tools, equipment, appliances, transportation, supervision, and related work necessary to complete the work specified in this section, and as shown on the Drawings.

B. Work performed under this Section of the Specifications shall be subject to the General Conditions, Supplementary Conditions and Division 01 General Requirements of the Contract Documents.

C. The work of this section includes but is not necessarily limited to:

1. Excavation, fill, and backfill, as indicated or required, including compaction.
2. Excavation, as required, to the lines and grades indicated on the Drawings and accepted the Engineer.
3. Excavation and offsite legal disposal of unsuitable or excess materials unless on-site locations are designated. Excavation shall include removal and satisfactory disposal of all unclassified material encountered throughout the site.
4. Rough grading, including placement, moisture conditioning, and compaction of fills and backfill.
5. Placement of base and subbase course materials under structures, pavements, and slabs, including compaction.
6. The removal, hauling and stockpiling of suitable excavated materials for subsequent use in the work. Stockpiling shall include protection to maintain materials in a workable condition.
7. Rehandling, hauling, and placing of stockpiled materials for use in refilling, filling, backfilling, grading, and such other operations.
8. Protect and preserve all existing buildings, tracks, pavements, and utilities to remain.
9. Furnishing and installing all sheeting, shoring, and bracing of structural excavations and its satisfactory removal, unless otherwise directed to have it remain in place.
10. Environmental controls.
11. Providing products in sufficient quantities to meet the project requirements.
12. Providing adequate pumping and drainage facilities to keep the work area sufficiently dry.

13. Obtain all required permits, licenses, and approvals of appropriate municipal and utility authorities, prior to commencing the work of this Section, and pay costs incurred therefrom.

D. Provide facilities, labor, materials, tools, equipment, appliances, and related work necessary to provide and maintain erosion and dewatering controls during construction operations. All measures shall be installed and maintained according to plans and other sections of the specifications.

E. Contractor shall be responsible for notifying all affected utility companies before starting work. Comply with the requirements of the Commonwealth of Massachusetts "Dig Safe" Utilities Underground Plant Damage Prevention System; telephone 1-888-344-7233.

F. Examine all other Sections of the Specifications for requirements which affect work of this Section, whether or not such work is specifically mentioned in this Section.

G. Coordinate work with that of all other trades or contracts affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2 Reference Standards

A. References made to the excavation support system are made in accordance with the following abbreviations and all work under this Section shall conform to the latest editions as applicable.

1. 2025 Commonwealth of Massachusetts, Massachusetts Highway Department, Standard Specifications for Highways and Bridges

   The special provisions that follow are intended to be in conjunction, and in addition to, the 1988 Commonwealth of Massachusetts, Massachusetts Highway Department, Standard Specifications for Highways and Bridges, as supplemented, with the July 1, 2015 Massachusetts Department of Transportations' Supplemental Specifications, and the Interim Supplemental Specifications dated September 18, 2015. These documents are referenced by language "Standard Specifications", "Section", "Subsection" in the following special provisions.

1.3 Design Criteria

A. Excavation Support System

1. The criteria set forth in this Section shall apply where the Contractor is responsible for the design of the excavation support.

2. Design the excavation support system in accordance with the earth pressures, and other detailed criteria indicated herein. Excavation support shall allow the safe and expeditious construction of the permanent structures without excessive movement or settlement of the ground, to prevent damage to, or movement or settlement of adjacent buildings, roadways, tracks, structures, or utilities, as shown on the Contract Drawings and as specified herein.

3. Design the excavation support system to support earth pressures, unrelieved hydrostatic pressures, and any adjacent structure surcharge loads, utility loads, equipment and construction loads. All loads shall be in accordance with AASHTO.

4. Consult official records of existing utilities, both surface and subsurface, and their connections to be fully informed on all existing conditions and limitations as they apply to this work and its relation to other construction work. Proceed with caution in areas of utility facilities. Expose them by hand excavation or by other methods acceptable to the utility owner. Protect existing utilities to remain within and adjacent to the work area in accordance with the requirements of authorities having jurisdiction over same. The Contractor is responsible for any damage to utilities caused by the Contractor's operations and shall restore them to equal or better operation at no additional cost to the Owner.

1.4 Submittals

A. The Contractor shall submit written documentation showing conformance of the materials and constructed work with the Specifications.

B. The Contractor shall submit the name of each material supplier and specific type and source of each material. Any change in source throughout the project requires approval of the Owner or Engineer.

C. The Contractor shall provide a final condition topographic survey completed by a Massachusetts licensed surveyor in accordance with Specification Section 01 78 39 - Record Drawings.

D. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by the absence of, the installation of, or the performance of excavation support and protection systems.

E. The Engineer will be responsible for the approval or rejection of the suitability of all materials.

1.5 Laws and Regulations

A. Work shall be accomplished in accordance with regulations of local, county, state and federal agencies or utility company standards as they apply.

1.6 Quality Assurance

A. The Engineer will periodically observe and document the earthwork activities to determine that the work is completed in general accordance with the Project Specifications.

B. The Contractor shall provide a minimum forty-eight (48) hour notice to the Engineer prior to commencing earthwork operations.

C. Approvals given by the Engineer shall not relieve the Contractor of his responsibility for performing the work in accordance with the Contract Documents.

D. The Contractor shall engage a licensed professional engineer, registered in the Commonwealth of Massachusetts, to design approved and inspect all excavation support areas on a periodic basis.

E. Testing (by Contractor’s QC Firm) of on-site backfill, clean fill and aggregate subbase from off-site borrow sources, shall include:

1. Soil Classification (ASTM D2487) – Minimum of one test for each visible change in material, at least one test for every borrow source, and at least one test for every 5,000 tons of clean

fill, re-compacted subgrade, and aggregate subbase material placed. One test for the on-site backfill material placed. Testing shall be incidental to the work.

2. Standard Proctor Moisture - Density Curve (ASTM D698) – Minimum of one test for each visible change in material, at least one test for every borrow source, and at least one test for every 5,000 tons of clean fill, re-compacted subgrade, and aggregate subbase material (if less than 30% by weight is retained on the ¾-inch sieve) placed. One test for the on-site backfill material placed. Testing shall be incidental to the work.

F. During performance of the Work, the Contractor shall employ all equipment and services necessary for control of depths, lines, and grades within required tolerances.

G. The Owner may retain and pay for the services of an independent testing and inspection firm and/or a Geotechnical Consultant to perform on-site observation and testing during the various phases of the construction operations. The scope of services will be determined by the Owner and the independent testing and inspection firm and/or the Geotechnical Consultant and will be provided to the Contractor. The Owner reserves the right to modify or waive the services of the independent testing and inspection firm and/or the Geotechnical Consultant. The services of an independent testing firm and/or Geotechnical Consultant may include, but not necessarily be limited to, the following:

1. Observation during excavation and dewatering of controlled fill areas.

2. Laboratory testing and analysis of fill materials as specified herein and proposed by the Contractor for incorporation into the Work.

3. Observation of construction and performance of water content, gradation and compaction tests at a frequency and locations that the independent testing and inspection firm and/or the Geotechnical Consultant may require. The results of these tests will be submitted to the Owner, Engineer, and Contractor on a timely basis so that action can be taken to remedy indicated deficiencies. During construction, the independent testing and inspection firm and/or the Geotechnical Consultant will advise the Owner in writing, if at any time in their opinion, the Work hereunder is of unacceptable quality. Failure of independent testing and inspection firm and/or the Geotechnical Consultant to give notice, shall not excuse the Contractor from latent defects discovered in his work.

H. The Contractor shall make provisions for allowing observations and testing of Contractor's work by the independent testing and inspection firm and/or the Geotechnical Consultant.

1. The presence of the independent testing and inspection firm and/or the Geotechnical Consultant does not include supervision or direction of the actual work of the Contractor, and his employees or agents. Neither the presence of the independent testing and inspection firm and /or the Geotechnical Consultant, nor any observations and testing performed by them, nor failure to give notice of defects shall excuse the Contractor from defects discovered in his work.

I. Costs related to retesting due to unacceptable qualities of work and failures discovered by testing shall be paid for by the Contractor at no additional expense to Owner, and the costs thereof will be deducted by the Owner from the Contract Sum.

J. Whenever grading within floodplain areas are designated on the plans, grading elevations are to be considered critical to the floodplain volumetric calculations and shall be constructed by the Contractor in strict conformance with the indicated grades.

1.7 Coordination

A. Examine all other Sections of the Specifications for requirements which affect work of this Section, whether or not such work is specifically mentioned in this Section.

B. The work of this Section shall be coordinated with that of other trades affecting, or affected by, this work, as necessary to assure the steady progress of all work of the Contract.

C. It is hereby understood that the Contractor has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions.

D. Plans, surveys, measurements and dimensions under which the work is to be performed are believed to be correct to the best of the Engineer's knowledge, but the Contractor shall have examined them for himself during the bidding period. The Contractor shall verify dimensions and elevations on the ground and report any discrepancies immediately to the Engineer. Any discrepancies not reported prior to construction shall not be the basis for claims for extra compensation.

E. As construction proceeds, the Contractor shall be responsible for notifying the Owner and Engineer prior to the start of earthwork operations requiring observation and/or testing.

1.8 Subsurface Soil Data

A. Existing soil information is derived from limited information provided on existing plans dated 1955. Any apparent conflicts with the new construction shall be brought to the attention of the Engineer prior to the start of the earthwork operations.

1.9 Permits, Codes and Safety Requirements

A. All work shall conform to the Drawings and Specifications and shall comply with applicable codes and regulations.

B. Bridge improvements shall be constructed to carry HL-93 live loads (32,000 lbs. axle - legal load).

C. All work shall comply with the provisions of the Manual of Accident Prevention in Construction of the Associated General Contractors of America, Inc., and the requirements of the Occupational Safety and Health Administration, United States Department of Labor.

D. The Contractor shall procure and pay for all permits and licenses required to complete the work specified herein and shown on the Drawings.

E. The Contractor shall properly maintain all excavations, sheeting, bracing or other facilities in a safe condition throughout the project. Sufficient suitable barricades, warning lights, floodlights and signs to protect life and property shall be installed and always maintained.

F. The use of explosives will not be permitted without specific authorization in writing by the Owner.

1.10 Layout and Grades

A. All lines and grade work not presently established at the site shall be laid out in accordance with Drawings and Specifications by a Registered Land Surveyor or Professional Engineer employed by the Contractor. The Contractor shall establish permanent benchmarks and replace as directed by the Engineer any which are destroyed or disturbed.

B. The words "finished grade" as used herein shall mean final grade elevations indicated on the Drawings. Spot elevations shall govern over proposed contours. Where not otherwise indicated, project site areas shall be given uniform slopes between such points and existing established grades.

C. The word "subgrade", as used herein, means the required surface of subsoil or compacted fill. This surface is immediately beneath the site improvements, specially dimensioned fill, or other surface material.

1.11 Disposition of Existing Utilities

A. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, the Contractor shall notify the Engineer and Utility Owner immediately for directions. The Contractor shall provide sketches of existing conditions if there are variances, as well as any modifications, on "as-built" drawings.

B. Existing utilities providing service to facilities occupied and used by the Owner shall not be interrupted except when approved in writing, and then only after temporary utility services have been approved and provided.

C. Active utilities existing on the site shall be carefully protected from damage and relocated or removed as required by the work. When an active utility line is exposed during excavation its location and elevation shall be plotted on the record drawings and the Contractor shall notify in writing both the Engineer and the Utility Owner.

D. The Contractor shall cooperate with the Owner and Utility Owner in keeping utility services and facilities in operation. All utilities shall be protected from damage during construction, unless otherwise indicated to be removed or abandoned. If damaged, the utilities shall be repaired as required by the Utility's Owner at the Contractor's expense. The Contractor shall contact the affected Utility as soon as any damage is uncovered.

E. Inactive or abandoned utilities encountered during excavation operations shall be removed, plugged or capped. The location of such utilities shall be noted on the record drawings and reported in writing to the Engineer.

1.12 Drainage

A. The Contractor shall control the grading in areas under construction on the site so that the surface of the ground will properly slope to prevent accumulation of water in excavated areas and onto adjacent properties.

B. Should surface, rain or groundwater be encountered during the operations, the Contractor shall furnish and operate dewatering measures and equipment to control water levels as required to perform the work. The Contractor shall be responsible for any damage to work or adjacent

properties from such water. All piping exposed above surface for this use shall be properly covered to allow foot traffic and vehicles to pass without obstructions.

C. The presence of groundwater, to any degree, will not constitute a condition for which an increase in the contract price may be made.

D. The Contractor shall dispose of accumulated water in accordance with applicable regulations, ordinances, and instructions of the authorities having jurisdiction. The Contractor shall obtain all necessary permits.

PART 2 - PRODUCTS

2.1 Materials

A. Subgrade is the material in excavation (cuts) and fills located below subbase.

B. On-Site Materials

1. Material on the site is the property of the Owner and shall be incorporated in the work if possible.
2. Material not incorporated in the work either because it is unsuitable, or the quantity exceeds the project's needs shall be hauled away and disposed of at the Contractor's expense.
3. Material designated by the Engineer to be wasted shall be disposed of by the Contractor.
    a. Contractor shall dispose of contaminated materials in accordance with the Contract Documents and all regulations.
    b. Material designated by the Engineer to be saved shall be stockpiled at a location designated by the Engineer.
    c. Unsuitable material shall consist of grubbing's or other materials of a deleterious nature as deemed by the Engineer and in accordance with the Contract Documents.

C. Clean Fill shall meet the approval of the Engineer. Clean fill shall be of such a nature that it will form a stable dense fill. The material shall be free of trash, ice snow, tree stumps, wood, roots, topsoil, organic materials, and other objectionable materials which may be compressible, or which cannot be properly compacted. Snow, ice, and frozen soils are not suitable fill materials and shall not be permitted.

1. Material shall be friable soil containing no stone greater than two-thirds (2/3) the loose lift thickness with a maximum stone size of two (2) inches in diameter.
2. Sediments resulting from dredging are not suitable materials for clean fill.
3. All on-site materials proposed to be used as clean fill are subject to Engineer approval.
4. Materials used for clean fill shall meet the following requirements: Maximum particle size of 2 inches. Minimum 10 percent passing No. 200 sieve. Maximum 15 percent passing No. 200 sieve.

D. Sand shall consist of clean, inert, hard, durable grains of quartz or other hard, durable rock, free from loam or clay, surface coatings and deleterious materials.

1. The allowable amount of material passing a No. 200 sieve as determined by AASHTO T-11 or ASTM D422 shall not exceed 5 percent by weight. The maximum particle size shall be 3/8-inch.

2. In addition to the above criteria the sand shall conform to the following gradation as determined by AASHTO T-27 or ASTM D422:

Sieve Size	Percent Passing (by Weight)
3/8-inch	100
No. 4	60 – 100
No. 16	35 – 80
No. 50	10 – 55
No. 100	2 - 10

E. Gravel Borrow shall consist of inert material that is hard, durable stone and coarse sand, free from loam, clay, surface coatings and deleterious materials. Gradation requirements for gravel shall be determined by AASHTO-T11 and T27 and shall conform to MassDOT Standard Specifications.

Sieve (ASTM D422)	Percent Passing (by Weight)
1/2-inch	50 – 85
No. 4	40 – 75
No. 50	8 – 28
No. 200	0 - 10

Type A: 6-inch largest dimension.
Type B: 3-inch largest dimension.
Type C: 2-inch largest dimension.
Type D: 1.5-inch largest dimension.

The gradation for Gravel Borrow for Bridge Foundations shall have at least 70% passing the ¾-in. sieve.

F. Dense Graded Crushed Stone for Subbase shall combine crusher-run coarse aggregates of crushed stone and fine aggregates uniformly premixed with a predetermined quantity of water. Coarse aggregate shall consist of hard, durable particles of fragments of stone. Materials that break up when alternately frozen and thawed or wetted and dried shall not be used. Coarse aggregate shall have a percentage of wear, by the Los Angeles test, of not more than 45. Fine aggregate shall consist of natural or crushed sand. The composite material shall be free from clay, loam or other plastic material, and shall conform to the following grading requirements:

Sieve Size (ASTM D422)	Percent Passing (by Weight)
2-inch	100
1.5-inch	70 – 100
¾-inch	50 - 85
No. 4	30 - 55
No. 50	8 - 24
No. 200	3 - 10

G. Crushed Stone shall be composed of durable crushed rock consisting of angular fragments, free from a detrimental quantity of thin, flat, elongated pieces or shall be durable crushed gravel stone obtained by artificial crushing of gravel boulders or fieldstone.

1. The crushed stone shall be free from clay, loam, or deleterious material.
2. Crushed stone shall conform to the following gradation:

Sieve Size	3/8-inch Stone	Percent Passing (by Weight)	
		1/2-inch Stone	3/4-inch Stone
1-inch	-	-	100
3/4-inch	-	-	90 – 100
5/8-inch	-	100	-
1/2-inch	100	85 – 100	10 - 50
3/8-inch	85 – 100	15 – 45	0 - 20
No. 4	10 – 30	-	0 - 5
No. 8	10 (max.)	0 - 5	-

	Percent Passing (by Weight)	
Sieve Size	1.5-inch Stone	2-inch Stone
2-inch	100	90 – 100
1.5-inch	95 – 100	-
1.25-inch	-	25 – 50
1-inch	35 – 70	-
3/4-inch	0 – 25	0 – 15
1/2-inch	-	-

H. Topsoil (stripped from site) or Loam (supplied from off-site) shall be a sandy loam or loam soil classification as defined by the USDA Soil Conservation Service, Soil Classification System

consisting of consisting of a fertile, friable, natural topsoil/loam typical of locality, without admixture of subsoil, refuse or other foreign materials, shall be obtained from a well-drained arable site, and shall meet ASTM D5268. Material shall be such a mixture of sand, silt and clay particles as to exhibit sandy and clayey properties in about equal proportions. Material shall be free of stumps, roots, heavy or stiff clay, stones larger than 3/4-inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other litter, and shall have the following mechanical analysis:

Textural Class	Percent of Total Weight	Average Percent
Sand 0.05 - 2.0 mm dia. range	45 to 75	60
Silt 0.002 - 0.05mm dia. range	15 to 35	25
Clay less than 0.002 mm dia. range	5 to 25	15

1. 95 percent of Topsoil shall pass a 2.0 mm sieve.
2. Topsoil/Loam shall have a pH value in the range of 6.0 to 7.0. If Topsoil/Loam material does not fall within the required pH range, limestone or aluminum sulfate shall be added to bring the pH within the specified limit.
    a. Prior to stripping, the topsoil shall demonstrate, by the occurrence upon it of healthy crops, grass or other vegetative growth, that it is reasonably well drained and that it does not contain toxic amounts of either acid or alkaline elements.
    b. Loam and topsoil shall contain not less than 4 percent nor more than 20 percent organic matter as determined by the loss on ignition of oven-dried samples. Test sample shall be oven-dried to a constant weight at a temperature of 230°F. ±9°.

    In other portions of these specifications, the words 'loam' and 'topsoil' are used interchangeably.

l. Compost shall be derived from organic wastes such as leaf and yard waste residues. No bio-solids may be used. Compost shall be in accordance with and meet the requirements of MassDEP Guidelines for compost. Per the MassDEPT Stormwater Handbook Volume 2, Chapter 2, biosolids shall not be included as source materials for compost. Compost shall be a highly organic dark brown to black spongy residue resulting from the well-aerated composting of deciduous organic materials, free of plants and their roots, debris, stones, or other objects larger than 1-inch in any direction. It should be free of other extraneous matter and shall be uncontaminated by foreign matter and substances harmful to plant growth.

1. The compost shall have the following properties:
    a. pH 5.5 – 8.0
    b. Moisture Content 35% - 55%
    c. Soluble Salts 4.0 mmhos (dS)
    d. C:N ratio 15 – 30:1
    e. Particle Size < 1"

f.	Organic Matter Content	> 25%
g.	Bulk Density	< 1,300 lbs / cubic yard
h.	Foreign Matter	< 1% (dry weight)

PART 3 - EXECUTION

3.1 General

A. Excavations, filling, backfilling, and grading shall be to subgrade elevations specified.

B. Excavated materials suitable for backfill shall be stockpiled in an orderly manner sufficiently distant from excavations to prevent overloading, slides, and cave-ins.

C. Excavations shall be done in ways that will prevent surface water and subsurface water from causing flooding or other damage to the site and surrounding area.

3.2 Examination

A. The Contractor shall examine the areas and conditions under which excavating, filling, and grading are to be performed and notify the Engineer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

3.3 Clearing and Grubbing

A. Cut and remove trees, remove stumps and brush. Legally dispose of off-site.

B. Disposal of wood waste in Massachusetts is regulated under 310 CMR 16.05 and 310 CMR 19.120. Wood wastes may be chipped and shredded on-site and reused on-site with prior approval of the Engineer.

C. Strip all topsoil, subsoil and other unsuitable materials to its full depth within the Contract limits.

D. Under pavement areas, unsuitable materials shall be removed and disposed of by the Contractor to an approved off-site location and replaced with Gravel Backfill. These materials shall be processed to remove all roots, stones larger than 3/4 inch in diameter, and other deleterious materials. Stockpile as approved by the Engineer. Protect the topsoil from contamination by other materials.

E. Other Specification Sections shall apply to clearing and grubbing under demolition and shall include air quality, erosion control, and hazardous waste.

F. Remove all topsoil, subsoil, vegetative matter, and non-soil materials and, after screening out the roots, rocks greater than 3/4 inch in size, and deleterious debris, separately stockpile the topsoil and subsoil materials.

3.4 Dewatering

A. Provide, operate, and maintain site and subsurface drainage and dewatering in an acceptable manner as required to complete the work throughout the course of the project.

B. Provide, maintain, and operate wells, pumps, and related equipment including stand-by equipment of sufficient capacity to maintain excavations and trenches free of water 24 hours per day to enable all work to be conducted in-the-dry and to protect bearing surfaces from disturbance.

C. Water from excavations shall be disposed of in such manner as will not cause injury to public health, public and private property, existing work, work to be completed or in progress, roads, walks, and streets, or cause any interference with use of same by public. Concrete or fill shall not be placed in excavations containing free water.

D. Should construction require excavation below water level in soil, the Contractor shall complete work in-the-dry to maintain the undisturbed condition of the bearing soil.

E. Maintain groundwater at least two (2) feet below lowest exposed subgrade level. If the dewatering methods have not been adequate and the bearing soils are disturbed, remove disturbed soil and replace with compacted Gravel Backfill or lean concrete at no additional cost to the Owner.

F. Sumps shall be surrounded by suitable filter media to minimize the fines removed during pumping.

G. Pumped groundwater and surface water runoff shall be initially pumped to a floating turbidity curtain to remove suspended solids. The Contractor shall furnish all treatment systems that are necessary for pretreatment of groundwater prior to discharge in accordance with all applicable permits and regulations.

H. Discharge of pumped water, either surface water runoff or groundwater, shall be in compliance with discharge criteria contained in permits issued by governing agencies, and all legal requirements and regulations. All permits shall be obtained by the Contractor.

3.5 Excavations

A. Site General Requirements

1. Site excavation shall conform to elevations and dimensions shown within a vertical tolerance of 0.10 feet except as otherwise stipulated in the field by the Engineer or Owner. The Contractor shall excavate to a depth to provide for any subsequent loam, sod, or other specified surface material.

2. Sides and slopes of excavations shall be maintained in a safe condition by sloping, scaling, benching, shelving, or shoring and bracing until completion of backfill placement as applicable, or completion of finished slopes, as shown on the drawings.

3. Provide shoring, sheeting, and bracing of excavations as required to assure complete safety against collapse of the earth at the site of excavations. Alternatively, lay back excavations to suitable slope.

4. Control the grading so that ground is pitched to prevent water from running to excavated areas, damaging other structures, or adjacent properties.

5. Where soil has been softened or eroded by flooding, equipment, traffic, or placement during unfavorable weather, or such other conditions, it shall be removed and replaced by the Contractor with suitable material, and at no cost to the Owner.
6. Exercise care to preserve the material below and beyond the lines of excavation. Where excavation is carried out below indicated grade or beyond the lines of excavation, Contractor shall backfill and compact the over excavation with Gravel Backfill to the indicated grade, at no additional cost to the Owner and at the direction of the Engineer.
7. Provide sheeting, shoring and bracing to complete and protect all excavated areas, as required for safety and compliance with OSHA. The Contractor shall adhere to and enforce precautions as outlined in OSHA Regulations, CFR 29, Part 1926.650. Costs for sheeting, shoring, and bracing shall be included as a part of the Contract Price for completing the work and Owner shall make no separate payment for this work.
8. Excavated materials unsuitable for reuse, surplus excavated rock, and surplus excavated soil not used to fulfill requirements of the Contract, shall become the property of the Contractor and shall be removed from the site in accordance with the regulations and requirements of all municipalities or agencies having jurisdiction over the disposal sites and the route between the project and the disposal sites.
9. Unsuitable materials which are classified as organics such as peat, trash, fill, stumps, debris, material determined to be hazardous, and topsoil and subsoil when determined by Engineer to be unacceptable for incorporation into the work.
10. Do not over excavate below proposed design grades for the purpose of obtaining borrow for use off-site.

3.6 Excavation Support System

A. Design, furnish, install, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting soil and hydrostatic pressure and superimposed construction.

1. Provide professional engineering services needed to assume engineering responsibility, including preparation of Shop Drawings and a comprehensive engineering analysis.
2. Prevent surface water from entering excavations by grading, dikes, or other means.
3. Install excavation support and protection systems without damaging existing buildings, pavements, and other improvements or facilities adjacent to excavation.
4. Provide vibration monitoring.
5. Prevent impacts on adjacent properties and utilities.

B. Installation and Removal of Temporary Shoring

1. Install and remove temporary shoring in accordance with the accepted working drawings. Install, maintain, and remove temporary shoring in such a manner as to prevent movement, settlement, or loss of ground, removal of fines from the adjacent ground, or damage to or movement of adjacent structures.

2. The Contractor is responsible for removal of obstructions, if encountered, by pre-trenching/pre- excavation or other means and backfilling with a suitable material.
3. The Contractor shall repair all damage to adjacent properties and restore the surfaces and finishes to the original state.

C. Preparation

1. Protect the adjacent utilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.
    a. Shore, support, and protect utilities encountered.
2. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

D. Sheet Piling (if used)

1. Before starting excavation, install one-piece sheet piling lengths and tightly interlock to form a continuous barrier. Accurately align exposed faces of sheet piling to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment. Cut tops of sheet piling to uniform elevation at top of excavation. Sheet piling shall not be used in the vicinity of the underground sewer line.

E. Removal and Repairs

1. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and support soil, surcharge and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging structures, pavements, facilities, and utilities.
    a. Remove excavation support and protection systems to a minimum depth of 24 inches below proposed grade and abandon remainder.
    b. Repair or replace, as approved by Engineer, adjacent work damaged or displaced by removing excavation support and protection systems.

3.7 Material Storage

A. The Contractor shall stockpile satisfactory excavated material where directed, until required for backfill or fill. The Contractor shall place, grade and shape stockpiles for proper drainage.

B. Materials required in the work shall be located and retained a sufficient distance from the edge of excavations to prevent such materials from falling or sliding back into the excavations and to prevent cave-ins.

C. The Contractor shall dispose of excess soil material and waste materials as herein specified.

3.8 Preparation of Excavation Bottoms

A. The Contractor shall complete the excavations to the specified or indicated limits and required subgrades.

B. The Contractor shall remove any additional materials below subgrade levels which were not naturally deposited, are disturbed or are unsuitable, as directed by the Engineer.

C. The Contractor shall grade all holes, swales and low points which will not otherwise be removed in the course of the work to the indicated subgrade level.

3.9 Backfilling and Placement

A. General

1. Areas where excavation has been completed, as determined by Engineer, shall be backfilled as specified and as shown on the Drawings.
2. Fill materials of the various types specified shall generally be placed and compacted within the limits and to the thickness indicated on the Drawings unless otherwise specified.
3. Prior to placing fill materials, the Contractor shall complete the specified ground surface and subgrade preparation for materials encountered at ground surface and at subgrade levels.
4. Contractor shall always keep Record Drawings on the site and neatly and accurately record the exact location of their work as actually installed. This shall include the location and dimensions of underground and concealed Work.
5. Dewater subgrade areas prior to filling.
6. Control groundwater and surface runoff to minimize disturbance of exposed natural ground surface, previously placed and compacted fill and material being placed.
7. Soil fill moisture shall be maintained at an acceptable working range to allow for proper compaction. The amount of moisture required shall be determined by the Engineer for the material and compaction methods being used. Moisture shall be added to the material during compaction only when it is necessary to increase the percentage of moisture to obtain satisfactory compaction.
8. Do not place fill on frozen ground.
9. Do not place frozen fill.
10. Place fill in uniform horizontal layers and compact immediately after placement. Where the horizontal layer meets a rising slope, the layer shall be keyed into the slope by cutting a bench during spreading of preceding lift.
11. To the extent that is practical, each layer of fill shall be compacted to the specific density the same day it is placed.
12. The Contractor shall minimize voids during placement.
13. Backfill shall be placed within a tolerance of plus or minus 0.10 feet from the locations, elevations, and grades shown on the Drawings.
14. Protect structures and pipes from damage during backfilling operations. Repair damage at no cost to Owner.

15. Placement of fill shall not begin prior to observation and approval of subgrade conditions by Engineer.
16. Protect foundations, footings, and waterproofing during backfilling. Repair damage at no cost to Owner.
17. Prior to backfilling between structures and sheeting, remove unsuitable material, including rubbish, organic materials, or other debris. Do not commence filling operations until conditions have been observed by Engineer.
18. Backfill shall not be placed against walls until they are braced or have cured sufficiently to develop strength necessary to withstand, without damage, pressure from backfilling and compacting operations.
19. In compacting and other operations, the Contractor shall conduct his operations in a manner to prevent damage to structures due to passage of heavy equipment over and adjacent to structures. Repair damage made by the Contractor, at no additional cost to the Owner.
20. Upon completion of the work, the final ground surface shall be left in a firm, unyielding, true, uniform condition free from ruts. Repair disturbed areas caused by equipment traffic at no cost to Owner.
21. The Gravel Backfill shall be placed and compacted at least three (3) days prior to the placement of the concrete structures. Each layer shall be compacted immediately after placing.
22. Gravel Backfill shall be used as backfill beneath all structure foundations to replace unsuitable material or as backfill beneath structure foundations to meet the depth of the bottom of footings and shall be at least six (6) inches deep.

B. Equipment

1. Compaction equipment used in open areas where space permits shall consist of vibratory rollers, fully loaded ten-wheel dump trucks, pneumatic compactors, or other similar equipment.
2. Compaction equipment for fill against walls and in other confined areas shall be accomplished by means of drum-type, power-driven, hand-guided vibratory compactors operating at 2,000 cycles per minute, or by hand-guided vibratory plate tampers.

3.10 Compaction

A. General

1. Compaction densities for the backfilling operations shall be the percentage of the maximum density obtainable at optimum moisture content, as determined and controlled in accordance with ASTM Standard 1557 Method D. Laboratory maximum density tests shall be made for each material proposed for use in backfilling for trenches. Field density tests shall be made in accordance with ASTM Standard D1556. All laboratory and field density tests shall be conducted by an approved laboratory.

2. Locations for field density tests shall be as directed by the Engineer. Field density tests may be ordered by the Engineer as the situation warrants.

B. Moisture Control

1. Fill that is too wet for proper compaction shall be harrowed or otherwise dried to a proper moisture content to allow compaction to the required density. If fill cannot be dried within 24 hours of placement, it shall be removed and replaced with drier fill.

2. Fill that is too dry for proper compaction shall receive water uniformly applied over the surface of the loose layer. Sufficient water shall be added to allow compaction to the required density.

3. In no case shall fill be placed over material that is frozen. No fill material shall be placed, spread, or rolled during unfavorable weather conditions. When work is interrupted by heavy rains, fill operations shall not be resumed until the moisture content and the density of the previously placed fill are as specified.

C. Lift Thickness of Material

1. Gravel Backfill. The Gravel Backfill shall be placed in layers not to exceed 12 inches (12") in thickness when utilizing heavy compaction equipment, and 6 inches (6") when utilizing light hand-operated compaction equipment and compacted to 95% maximum relative density as determined by AASHTO T99, Method C. The granular material shall be placed in the full width of the excavation with equipment as approved by the Engineer and in such a manner which will not cause segregation, and which will require minimum blading or manipulation. The equipment and the method used shall be approved by the Engineer.

2. On-Site Materials and Clean Fill. On-site Materials and Clean Fill to be used as backfill shall be placed in uniform layers not exceeding 12 inches when utilizing heavy compaction equipment, and 8 inches (8") when utilizing light hand-operated compaction equipment, and compacted to the minimum degree of compaction as listed above, as determined by ASTM D698 with a minimum of three passes of a vibratory compactor or other approved equivalent.

3. Crushed Stone and Gravel Backfill. Crushed Stone and Gravel Backfill to be used as backfill shall be placed in uniform layers not to exceed 9 inches (9") in thickness when utilizing heavy compaction equipment, and 6 inches (6") when utilizing light hand-operated compaction equipment. Compact with a minimum of four (4) coverages of acceptable compaction equipment. Compact to the minimum degree of compaction as listed above, as determined by ASTM D698.

D. Protection of Fill

1. Protection of compacted fill shall be the responsibility of the Contractor. Newly graded areas shall be protected from the actions of the elements and traffic. Any settlement or washing that occurs prior to acceptance of the work shall be repaired and grades shall be established to the required elevations and slopes. Damage to any compacted lift (including those lifts previously tested and approved by the Engineer) occurring at any time during the course of construction, which is caused by equipment, moisture entering the embankment,

or from any other cause, shall be fully repaired by the Contractor prior to placement of overlying materials, at no additional cost to Owner and to the complete satisfaction of the Engineer.

2. In the event of and prior to the commencement of heavy rains, the Contractor shall suspend fill operations immediately and shall take all necessary steps to keep the site as well drained as possible. Fill operations shall not be resumed until the moisture content of the fill is such as to permit compliance with the Specifications.

3. All corrective work or operations necessary to maintain proper moisture control of the fill material shall be at the expense of the Contractor.

E. Grading Tolerances

1. Grading shall be completed to meet or exceed the following tolerances of uniformity*

Location	Tolerance
Final Grade	1 inch
Top of Subgrade Beneath Structures	1 inch

* Uniformity is defined as no variations in the surface materials at the grades and slopes indicated on the Drawings that exceed the listed tolerance over a length of ten feet (10') horizontally in any direction.

2. The bottom of earth and rock excavations shall be formed to provide a smooth, uniform slope and grade. The bottom of the excavated grade shall be free of pockets, depressions or ridges that would collect or concentrate water, silts, or other such objectionable material prior to the placement of backfill or other finish materials.

F. Finish

1. Upon completion of the work, ground surface shall be left in a firm, unyielding, true, uniform condition, free of ruts.

3.11 Sheeting and Bracing

A. Whenever sheeting and bracing will be required, it shall be furnished and installed by the Contractor in accordance with the recommendations of the structural engineer and/or geotechnical engineer engaged by the Contractor.

B. Submit the sheeting and bracing designs to the Owner and the Engineer for the project record. The sheeting and bracing plans and calculations shall bear the professional seals and signatures of the Contractor's engineers. These plans and calculations shall be submitted prior to the start of work.

C. The Contractor shall furnish and install the required sheeting and bracing in accord with the submitted designs. The Contractor shall include the costs for this work in his bid price for the project. No additional or separate compensation will be allowed.

3.12 Closing Abandoned Underground Utilities

A. The Contractor shall close open ends of abandoned underground utilities, indicated to remain, permanently with closures sufficiently strong to withstand pressures which may result after closing.

B. The Contractor shall close open ends of metallic conduit and pipe with threaded galvanized metal caps or plastic plugs, or other suitable method for the type of material and size of pipe. Do not use wood plugs.

C. The Contractor shall close open ends of concrete and masonry utilities with not less than 8-inch-thick brick masonry bulkheads, constructed to completely fill the opening.

3.13 Maintenance

A. The Contractor shall protect newly graded areas from traffic and erosion and shall repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances. The Contractor shall keep newly graded areas free of trash and debris.

B. The Work shall be sequenced to minimize disturbance of completed areas.

C. Where completed areas are disturbed by subsequent project operations or adverse weather, the Contractor shall fill and reshape eroded areas until acceptance of the Work.

3.14 Disposal of Excess and Waste Materials

A. The Contractor shall remove waste materials, including excess and unacceptable excavated material, trash and debris, and legally dispose of it off the Owner's property.

(END OF SECTION 31 00 00)

SECTION 31 10 00

DEMOLITION AND SITE CLEARING

PART 1 - GENERAL

1.1 Description

A. This Section specifies requirements for site clearing including demolition of site structures.

B. The work includes but is not limited to, furnishing all labor, materials, and equipment for:

1. Partial demolition, removal and disposal of the existing bridge structure within the limits shown on the Plans. This includes, but is not limited to, concrete sidewalks and clay tiles, roadway surfaces, steel railings, and concrete wingwall demolition.
2. Demolition, removal and final disposal of the on-site structures including guardrail and other incidental structures to be removed as shown on the Plans.
3. Protection of existing vegetation to remain.
4. Clearing, staging, stockpiling, loading, and disposal of vegetation, stumps, and roots.
5. Selective clearing, thinning.
6. Removal and storage of existing utilities as required for construction.
7. Removal and disposal of existing bituminous asphalt.
8. Removal and storing of existing riprap, granite curbing, and any other existing street furniture to be remain that is impacted during construction.
9. Transportation and disposal of material from clearing, grubbing, thinning, stripping, and demolition in approved off-site disposal areas.
10. Filling of voids and excavations resulting from the work.
11. Protection of stored items to be reused. Items damaged while being stored shall be replaced in-kind at no additional costs.

C. No trees shall be removed without the Engineer's approval. Any trees removed without Engineer approval shall be replaced at no additional cost to Owner.

1.2 References

A. American National Standards Institute (ANSI)

B. ANSI A10.6: 1983 Demolition Operations - Safety Requirements

1.3 Site Conditions

A. Site conditions existing during the bidding period will be maintained by the Owner insofar as practical.

B. Actual site condition variations that differ from those of the bidding period and which affect site clearing operations shall be brought to the attention of the Owner prior to the commencement of any site work.

1.4 Submittals

A. The Contractor shall submit the following information to the Engineer for review before commencing work:

1. Demolition Plan including operational sequence.
    a. Procedures for careful removal and disposal of the on-site structures.
    b. A detailed description of methods and equipment to be used for each operation and of the sequence of operations.
    c. Coordination with other work in progress.
    d. Methods of dust control.
    e. Methods of noise control.
    f. Shoring and bracing of any existing structures that are to remain as according to the Plans.
    g. Pedestrian and vehicular traffic and parking control.
    h. Statements affirming Contractor provisions for securing the safety of the workers throughout the performance of the work.
2. The Contractor's schedule shall provide for the following:
    a. Uninterrupted progress of Owner's on-site operations.
    b. Coordination with the Owner's continuing utilization of the site.
3. All permits and notices authorizing site clearing and demolition.
4. Certificates of utility service severances.
5. Permits for transport and disposal of debris.
6. Calculations.

1.5 Regulatory and Safety Requirements

A. The Contractor shall comply with Federal and State regulations for demolition. "Safety requirements shall conform to ANSI A10.6, 'Demolition Operations - Safety Requirements.'"

1.6 Quality Control

A. The Contractor shall perform site clearing and demolition in a manner that does not disturb existing structures, utilities, or other facilities not indicated to be removed.

1.7 Dust and Debris Control

A. The Contractor shall minimize the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in dangerous or otherwise objectionable conditions such as, but not limited to, ice, flooding, or pollution.

1.8 Protection

A. Traffic Control Signs: Where pedestrian and driver safety is endangered in the area of removal work, the Contractor shall use traffic barricades with flashing lights and other barriers suitable for restricting access to the work area.

B. Existing Work: The Contractor shall protect existing work which is to remain in place, be reused, or remain the property of the Owner.

C. Facilities: The Contractor shall protect electrical and mechanical services and utilities. If utilities are encountered and the Engineer specifies their removal, the Contractor shall provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

1.9 Areas to be Cleared

A. The Contractor shall complete demolition, clearing, grubbing, and stripping as specified in this Section and as shown on the Plans.

PART 2 - PRODUCTS

2.1 Tree Protection Fencing

A. Tree protection fencing shall be an orange plastic web fence, 4 feet high minimum. Wood stakes shall be six (6) foot long by 1 inch by 1 inch square driven a minimum of two (2) feet into the ground. Posts shall be spaced eight (8) feet on center, maximum.

PART 3 - EXECUTION

3.1 Protection

A. The Contractor shall flag the limits of clearing shown on the drawings by accurate field survey with marked stakes or other means acceptable to the Engineer. Trees to remain shall be clearly identified during this staking process. The Engineer shall be notified a minimum of five (5) working days prior to scheduled commencement of clearing operations to review the flagged limits. Adjust the clearing limits as directed by the Engineer.

B. Alignment stakes, grade stakes, witness stakes, boundary markers, bench marks, and tie points shall be preserved until such time as their usefulness has ceased and permission for their destruction is given by the Engineer.

C. Before clearing begins, protect designated trees to remain with tree protection fencing to the approximate diameter of foliage (dripline of the tree) to prevent damage to the trunk, foliage and root system by construction equipment and procedures. The Contractor shall maintain temporary fencing and remove when construction is complete.

D. The Contractor shall not deface, injure or destroy trees or shrubs, nor remove or cut them without permission. Ropes, cables or guys shall not be fastened to or attached to trees for anchorage unless approved for emergency use. Where such special emergency use is permitted, the Contractor shall wrap the trunk with burlap or rags, and tie softwood cleats over wrapping. The Contractor shall be responsible for any damage resulting from such use.

E. Where trees may possibly be defaced, bruised, injured, or damaged by equipment, dumping or other operations, the Contractor shall protect such trees by placing boards, planks, or poles around them.

F. The Contractor shall protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. The Contractor shall protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

G. The Contractor shall not store construction materials, debris, or excavated material inside tree protection zones. The Contractor shall not permit vehicles or foot traffic within tree protection zones and shall prevent soil compaction over root systems.

H. Place tree protection fencing as required to protect other plants, adjacent property areas to remain uncleared, monuments, and existing improvements from damage.

I. The Contractor shall repair or replace immediately any damage to existing trees or root systems that are to remain. The Contractor shall employ an arborist licensed in the Commonwealth of Massachusetts to determine the repair and replacement needs and methods for approval by the Engineer.

J. Replace damaged shrubs and other vegetation designated to remain with the same size and species.

K. The tree protection fencing shall be maintained for the duration of construction operations. The work shall include immediate replacement of any damaged fence. Fencing shall be removed from the site at the completion of construction operations. The fencing disposal shall be in accordance with local, state, and federal laws and regulations for the disposal of the material.

3.2 Tree Removal

A. Tree removal shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees.

B. Depressions, excavations and voids resulting from the removal of stumps or roots shall be filled with suitable material and compacted as specified under Section 313000 – EARTHWORK.

3.3 Tree Repair and Replacement

A. The Contractor shall promptly repair trees damaged by construction operations within 24 hours at no additional cost to Owner or Engineer. Trimming or pruning shall be performed in an approved manner. Trimming with axes will not be permitted.

B. The Contractor shall plant and maintain new trees as directed by the Engineer and warranty for 2 years from the date of substantial completion, at no additional cost to the Owner.

3.4 Utilities

A. The Contractor shall notify all corporations, companies, individuals, or local authorities owning or having jurisdiction over utilities running to, through, or across areas to be affected by site clearing operations.

B. If there is a need for interruption of services the following conditions shall apply:

1. Seven working days' notice shall be required prior to interrupting utility services.
2. Written permission must be granted by the Owner prior to interrupting utility services.
3. Temporary services may be required prior to interrupting utility services.

C. Before starting, the Contractor shall locate and identify existing utilities that are to remain and protect them from damage.

D. The Contractor is to ensure utilities requiring realignment to accommodate the proposed precast bridge elements can be reset as shown on the Plans or as directed by the Engineer. On discovery of any conditions deviating from what is shown on the Plans, the Contractor is to immediately notify the Engineer and shall not proceed until written direction is received.

E. The Contractor shall remove frames, covers, and grates from manholes, catch basins and gate valves and satisfactorily store and protect them until they are required for reuse in the work. Existing frames, covers, and grates determined by the Engineer to be unsuitable for reuse shall be removed from the site.

F. For utilities to be disconnected, have utility services disconnected in accordance with the requirements of the utility owner.

3.5 Clearing and Grubbing

A. Clearing shall include cutting, removal, and off-site disposal of trees, bushes, shrubs, stumps, fallen timber, brush, refuse, trash, fencing and other incidental materials not required for reuse on the site.

B. Clearing shall also include the removal and disposal of debris, refuse, or structures that obtrude, encroach upon, or otherwise obstruct the Work, including existing riprap or armoring within areas designated for clearing.

C. Brush and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such vegetation as may be indicated or directed to be left standing.

D. The Contractor shall grub the area within the clearing limits to completely remove and dispose of stumps and root systems (roots larger than 3 inches in diameter), except for those to remain.

E. Material to be grubbed, together with logs and other organic material not suitable for subgrade purposes, shall be removed to a depth of not less than 18 inches below the original surface level of the ground in areas indicated to be grubbed.

F. Depressions, excavations and voids resulting from the removal of stumps or roots shall be filled with suitable material and compacted as specified under Section 313000 – EARTHWORK.

3.6 Selective Clearing and Thinning

A. Selective clearing and thinning shall be completed as directed by the Engineer.

B. The work shall include the removal of dead and diseased tree limbs and plants, and pruning and removal of live vegetation that interferes with the growth of other trees and plants. Areas of dense growth shall be thinned to provide room for healthy growth.

3.7 Stripping

A. Stripping shall consist of the removal of grass to a depth of at least 3 inches and removal of all topsoil and organic soils to a minimum depth of 6 inches.

B. The Contractor shall remove grass before stripping topsoil.

C. The Contractor shall strip and stockpile topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

D. The Contractor shall remove subsoil and non-soil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.

3.8 Demolition Requirements

A. The Contractor shall perform all work in accordance with all applicable rules, regulations, codes and ordinances of local, state and federal authorities as well as public utilities having jurisdiction over the work and the Contractor shall notify all such agencies before commencing work. In addition, The Contractor shall call Dig Safe at 1-888-344-7233 at least 72 hours before work commences.

B. The Contractor shall confirm the exact location of all utility lines, equipment and conduits to remain and shall protect and support those encountered during the course of work. The Contractor shall be responsible for any damage resulting from construction operations. Where repairs are necessary to maintain or reestablish those items to remain in service, the Contractor shall bear all expenses thereto.

C. When existing active services are encountered that require relocation, the Contractor shall request in writing for a determination. The Contractor shall not proceed until written directions are received.

D. The Contractor shall provide all flagmen, barricades, lighting and other measures necessary to provide safe conditions at or around the project work.

E. On discovery of any unknown utilities during the demolition or remodeling the Contractor shall immediately notify the proper utility supplier and the Engineer.

F. Conduct demolition operations in a manner that will prevent damage to adjacent structures, utilities, pavements, and other facilities to remain.

G. Cease operations immediately if any damage, settlement or other adverse effect on adjacent structures occurs. However, if an obvious unsafe condition is created that would potentially cause injury to persons or undue harm to properties, the Contractor shall take whatever measures are warranted to prevent such injury or harm. Immediately notify the Engineer and regulatory authorities. Do not resume operations until conditions are corrected, damage repaired and approval has been received from the appropriate authorities and the Owner's Representative.

H. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon, or affect access to their property. Copies of the permission documents shall be submitted to the Engineer.

I. Provide hoses and water connections. Spray water on demolition debris to minimize dust.

J. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition which existed prior to start of work.

K. All hazardous waste removal shall be performed by a hazardous waste contractor qualified and duly licensed in the Commonwealth of Massachusetts to remove, transport, and dispose of each type of hazardous substance.

3.9 Demolition

A. Demolish structures to be removed and disposed of completely and remove from site, or remove intact, in accordance with the approved permits, procedures and operational sequence.

3.10 Filling Voids

A. Completely fill all voids including, but not limited to: excavation areas, and voids resulting from demolition or removal of structures with suitable material.

B. Areas to be filled shall be free of standing water, frost, frozen, and unsuitable material prior to fill placement.

C. Place and compact fill materials in conformance with the requirements

D. Grade surface of filled areas to match adjacent grades and slope to provide surface drainage.

3.11 Job Conditions

A. Condition of Structures: The Owner assumes no responsibility for actual conditions of items or structures to be demolished. Conditions existing at the time of commencement of the contract will be maintained by the Owner insofar as is practical. However, variations within the structure may occur by the Owner's removal and salvage operations prior to start of selective demolition work.

B. Damages: The Contractor shall promptly repair all damages caused to adjacent facilities and equipment by clearing and demolition work at no additional cost to the Owner.

C. Traffic: The Contractor shall conduct clearing and demolition operations in a manner to ensure minimum interference with roads, streets, walks, parking lots and other adjacent occupied or used facilities.

D. Utility Services: The Contractor shall maintain and protect existing services.

3.12 Disposal of Demolished Materials

A. The Contractor shall propose for the Engineer's approval, an off-site, legal, disposal location for material generated during clearing and demolition operations.

B. All material generated during clearing and demolition operations shall be disposed of at the approved disposal location.

C. Stripped topsoil shall be stockpiled on site for potential reuse.

D. No burning of any material will be allowed.

E. The use of explosives will not be permitted without specific authorization in writing by the Owner.

F. Underground boring is not permitted on the property without specific authorization in writing by the Owner.

(END OF SECTION 31 10 00)

SECTION 31 23 19

WATER MANAGEMENT

PART 1 - GENERAL

1.1 Description

A. This Section specifies the dewatering requirements for control of surface and subsurface water within the site.

B. The work includes:

1. Furnishing, installation, operation, maintenance, and removal of a water control system and sedimentation treatment basin required for the construction of the proposed work.
2. Removal of subsurface water (i.e. groundwater) from work areas and water generated from excavated material.
3. Control of surface water runoff to prevent flooding of work areas, and adjacent properties, and the saturation and loosening of soils.
4. Control of existing stormwater discharges affected by construction activities.
5. Provision of equipment and facilities to remove sediment and control the rates and volumes of disposal of surface and subsurface water removed from the work areas.
6. Provisions for the protection of adjacent and downgradient properties and environmental resources.

1.2 Water Management System Requirements

A. The Contractor shall design, provide, install, and operate the Water Management System. The Engineer shall approve the design prior to procurement or installation of same.

B. The Contractor shall comply with all conditions included with the Town of Winchester Conservation Commission Order of Conditions (Appendix A).

C. The Contractor shall design the water management systems to:

1. Divert river flow around the work area.
2. Maintain dry conditions within the work area.
3. Prevent damage to adjacent properties, buildings, structures, utilities and other facilities.
4. Retain all sediments on-site within the work area.

D. All material and equipment storage, equipment refueling, and maintenance activities shall be located outside of the area dewatered by the Water Management System.

E. The Contractor shall be responsible for the removal and legal disposal of all temporary structures or devices to an off-site location. The Contractor is responsible for restoring the river

to its original state, regrading, loaming, and seeding of all disturbed areas above the river banks, and any other incidental work required to perform this work as directed by the Engineer.

F. The Contractor shall be responsible for proper collection and discharge of stormwater runoff from existing utilities during construction. This outfall includes, but is not limited to, an existing pipe outfall located within the riverbank.

G. The Water Management System may include pumps and piping or hose, instrumentation and controls, sumps, wells, well points and temporary diversion devices.

H. The Contractor shall locate dewatering facilities where they will not interfere with utilities and construction work to be done by others.

I. The Contractor shall modify dewatering equipment and procedures when operations are insufficient to maintain dry conditions or threaten to cause damage to new or existing facilities or adjacent areas.

J. The Contractor shall design the Water Management System to minimize collection of suspended soils.

K. The presence of groundwater, to any degree, will not constitute a condition for which an increase in the contract price may be made.

L. Pumps and Piping or Hose:

1. The Contractor shall provide pumps and piping or hose capable of removing water from within the limits of diversion.

2. The Contractor shall notify the Engineer whenever pumps are added or removed.

3. The Contractor shall provide sufficient pumps and piping or hose to dewater all areas where site clearing, excavation, backfill, and other operations are taking place at any time.

M. Sumps:

1. The Contractor shall install and maintain sumps in each location where a pump is installed.

2. Sumps shall be designed to effectively remove significant quantities of silt encountered in the excavation and prevent them from entering the dewatering system.

N. Temporary Diversion Devices:

1. The Contractor shall provide sandbags, coffer dams or other temporary diversion devices required to divert water away from work areas and to locations where dewatering pumps are installed.

1.3 Submittals

A. Prior to installation of the Water Management System, the Contractor shall submit a Water Management Plan prepared by a registered professional engineer licensed in the jurisdiction of the Project. These Plans shall be submitted to the Engineer for review and approval prior to construction. The submitted plans shall include, at minimum, the following information:

1. The proposed types of methods, equipment, and operation of a river diversion system to divert flows and to collect, store and discharge water from the disturbed areas.

2. The proposed types of dewatering systems.
3. Arrangement, location and depths of system components.
4. Complete description of equipment and instrumentation to be used including installation, operation, and maintenance procedures.
5. Types and sizes of filters.
6. Design calculations demonstrating adequacy of the proposed system and equipment.
7. Specific provisions for prevention of silt discharge beyond the limits of the work area, during normal flows and storm flows.
8. Stabilization calculations for the proposed coffer dam system signed and stamped by a Professional Engineer licensed in the Commonwealth of Massachusetts.
9. Specific detail on how river flows will be maintained to allow progress of work.
10. Provisions and methods of sediment removal and disposal of water.
11. All permits required for the work.

B. The Contractor shall include a Schedule of Operations with the Water Management Plan that defines and details the methods for water management and type of installation to be used. The Schedule of Operations shall include a water control contingency plan with the following information:

1. Backup pumps, hoses, pipes, generators, sandbags, poly sheeting, and/or other applicable materials.
2. Backup methods for controlling water under high-flow river conditions. This shall include a contingency plan to evacuate and stabilize the construction zone, including placement of poly sheeting and crushed stone ballast over unfinished work, if river flow exceeds the capacity of diversion pumps and/or pipes.

C. The Contractor shall dewater in accordance with the means and methods submitted. The Engineer shall be notified of any changes required to accommodate field conditions and the Water Management Plan shall be revised and resubmitted.

PART 2 - PRODUCTS

2.1 General

A. The Contractor shall provide, operate, and maintain a Water Management System consisting of pumps, drains, piping instrumentation and controls, sumps, deep wells, well points, coffer dams, temporary diversion devices and any other facilities necessary to control water levels in areas of work, including spare units available for immediate use in the event of equipment breakdowns.

PART 3 - EXECUTION

3.1 General

A. The Contractor shall design, install, operate, and remove the Water Management Systems in accordance with applicable federal, state, county and local Laws and Regulations, and generally accepted industry practices.

B. Weather and site conditions shall be monitored 24 hours per day, 7 days per week.

C. The Contractor shall perform dewatering work, when necessary, at no additional cost to the Owner.

D. Pumping large volumes of water from sumps in excavations, resulting in movement of foundation soil material, will not be permitted.

E. In the event the National Weather Service Forecast issues a "flood warning" for southeast Middlesex County, the Contractor shall implement the provisions of the Flood Contingency Plan.

3.2 River Diversion

A. The Contractor shall operate and maintain the Diversion System at its design capacity during the period when river diversion is required for all phases of construction.

B. The Diversion System shall operate 24 hours per day except as approved by the Engineer.

C. The Contractor shall operate the system effectively to provide a dry work area.

D. The Contractor shall make reasonable efforts, in consultation with the Engineer, to modify operation procedures based on field conditions, if necessary to meet performance requirements of the system.

E. Pumping equipment, water diversion pipes, or other means of supplemental water diversion shall be kept available on-site in the case of the water elevation exceeding the capacity of the Diversion System.

3.3 Surface Water Control

A. The Surface Water Control System shall intercept and divert surface water runoff away from excavations using dikes, curbing, walls, ditches, pipes, sumps or other approved means.

B. The Surface Water Control System shall collect and prevent surface and subsurface water seepage from entering the excavations. The water shall be diverted to settling basins or other approved equipment required to reduce the amount of fine particles before discharging into drainage pipes and natural water courses. If a drainage system or water course is silted or becomes blocked due to dewatering operation, it shall be cleaned by the Contractor at no additional cost to the Owner. Any enforcement actions or fines resulting from improper dewatering and/or discharge of turbid water and sediment to protected areas shall be the sole responsibility of the Contractor.

3.4 Dewatering System

A. The Contractor shall furnish and install the components of the Dewatering System as required to perform the work and keep the site free of standing water or excessively muddy conditions as needed for proper execution of the construction work.

B. The Contractor shall accomplish dewatering in accordance with the means and methods submitted. The Engineer shall be notified of any changes required to accommodate field conditions and the Water Management Plan shall be revised and resubmitted.

C. The Dewatering System shall perform dewatering operations to lower the groundwater level in excavations as required to provide a stable, dry subgrade for the prosecution of the proposed work.

D. The Contractor shall maintain dewatering operations in a manner that prevents buildup of excessive hydrostatic pressure and damage to structures and the subgrade.

E. The Contractor shall not allow water to accumulate in excavations. The Contractor shall provide and maintain ample means and devices to promptly remove and properly dispose of all water entering excavations and to keep them dry until the proposed work is completed.

F. The Contractor, in consultation with the Engineer, shall modify the operation procedures on design based on field conditions, if necessary to meet performance requirements of the system.

G. The dewatering areas shall be limited to areas where work is being conducted and areas where work is planned for that day.

H. The Contractor shall grade the excavation area using slopes, berms and sumps in conjunction with the Dewatering System to channel water away from the immediate Work areas to minimize dewatering.

I. The Contractor shall not discharge water to protected environmental resources without treatment to remove suspended solids and sediments.

J. No water shall be allowed to inundate new concrete within 48 hours after installation.

3.5 Records for Well Systems

A. When well point or other types of well systems are used for dewatering, the following information shall be obtained and recorded:

1. The average flow rate and time of operation of each pump used in the Dewatering System. Appropriate devices, such as flow meters, for observing the flow rates shall be provided. The data, in tabular form, during the period that the Dewatering System is in operation shall be submitted.

2. The groundwater elevations during the period that the Dewatering System is in operation. Observation records daily within 24 hours of reading shall be submitted.

3. Daily observations are required during the initial period of dewatering. Observations may be changed to longer intervals if dewatering operations have stabilized after a specified period accepted by the Engineer.

3.6 Disposal of Water

A. The Contractor shall dispose of water pumped or drained from the construction site in a suitable manner to avoid public nuisance, injury to public health, damage to public and private property, and damage to the work completed or in progress.

B. Water discharged from construction and dredging operations shall be directed to sediment settling facilities, sediment filtration devices, or other treatment systems or devices accepted by the Engineer, prior to discharge to adjacent water courses.

C. At a minimum, the sedimentation treatment system shall be constructed of an earthen or stone berm lined with geotextile fabric and surrounded by staked straw bales or compost filter tubes. The sedimentation treatment system shall meet or exceed the following criteria:

1. The size and location of the system shall be determined based on the size of the Contractor's pump and the anticipated flows for the construction of the proposed work in the dry.

2. The outlet/weir of the system shall not cause erosion of the surrounding area. An approved method of controlling erosion, such as an erosion control blanket, stone, etc., shall be used at the outlet of the system.

3. The Contractor shall maintain the dewatering operations in working condition, including periodic removal of accumulated sediment within the system to permit its proper function. The water pump and hoses for dewatering shall be in good working condition and of adequate power and size for the operation.

4. The Contractor shall inspect straw bales/compost filter tubes that surround the outlet daily and shall immediately replace any that are damaged.

5. The proposed location and design of the system shall be subject to the approval of the Engineer, Conservation Commission, and MassDEP prior to construction.

D. Diverted water from the Aberjona River shall be discharged directly upstream or downstream of the work area as shown on the Drawings.

E. The Contractor shall provide suitable temporary channels for water that may flow along or across the construction site.

F. The Contractor shall not allow ground or surface water to enter piped utilities, except where the Owner specifically allows the use of storm drains for receiving such discharges.

3.7 Damage

A. The Contractor shall discharge water pumped from excavations in a manner which will not result in damage to adjacent properties.

B. All damage resulting from the dewatering operations, or the failure of the Contractor to maintain the work in a suitably dry condition, shall be repaired by the Contractor at no additional cost to the Owner.

C. The Contractor shall take all necessary precautions to protect new work from flooding and flood damage during storms or from other causes at no additional cost to the Owner.

D. The Contractor shall thoroughly brace or otherwise protect all pipelines and structures which are not stable, against flotation, when necessary.

3.8 Cofferdams

A. The Contractor shall design, construct, maintain and remove cofferdams where necessary for the dewatering, control, and diversion of water to keep the work area free of water. The cofferdams shall not be installed until the submitted calculations have been reviewed and approved by the Engineer.

B. The Contractor shall design and construct cofferdams to withstand all imposed loads to prevent injury to persons and property. The Contractor shall construct cofferdams to depths to permit a reasonable change in depths of the work, of sufficient height to prevent flooding, and of such dimensions to give sufficient clearance for construction and inspection.

C. The Contractor shall remove all cofferdams, and any other associated facilities, after the completion of permanent construction.

3.9 Removal of Temporary Works

A. After all temporary works have served their purpose, the Contractor shall remove them, or level and grade them, to the extent required by the Plans to prevent any obstruction of water flow or any other interference with the operation of, or access to, the permanent work.

(END OF SECTION 31 23 19)

SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 Description

A. This Section specifies requirements for temporary and permanent erosion and sedimentation control provisions as they relate to the construction process.

B. The work includes:

1. Providing and maintaining all temporary erosion and sedimentation control measures shown on the Plans and required by the Engineer during the life of the Contract to control soil erosion and water pollution.

2. The installation and maintenance of additional silt fence, berms, ditches, sedimentation basins, construction exits, fiber mats, catch basin filters, straw, netting, gravel, trenches, mulches, grasses, slope drains, and other approved erosion control devices or methods needed to protect any areas on or off site

3. Dust suppression.

C. When the use of siltation fence is ordered, the Contractor shall furnish and place siltation fence as a temporary erosion and pollution control device at locations shown on the plans or ordered by the Engineer.

D. When seeding is ordered, the Contractor shall sow seed of the type ordered on the areas as directed by the Engineer.

1.2 Definition and Coordination of Erosion and Sedimentation Control Provisions

A. Permanent erosion and sedimentation control measures are defined as those elements that are to be incorporated into the final project product, including but not necessarily limited to such items as: finish paving and landscape, sedimentation control structures (catch basins, etc.), swales and ditches, berms, and other such items.

B. Temporary erosion and sedimentation control measures are defined as those elements that are required by permit approvals and necessary to be installed by the Contractor to meet federal, state and local regulations for the construction program, including, but not necessarily limited to, such items as: silt fences, tree protection fence, turbidity curtains, berms, portable sedimentation basins, straw bales, straw wattles, erosion control blanket, check dams, and other such items, all of which shall be removed by the Contractor after installation of permanent erosion and sedimentation control measures, stabilization of the site, and prior to final completion of the project.

C. The temporary control provisions shall be coordinated with the permanent erosion and sedimentation control features to the extent practical to ensure economical, effective, and

continuous erosion and sedimentation controls throughout the construction and post-construction periods.

1.3 Laws and Regulations

A. Town of Winchester Conservation Commission Order of Conditions, MA DEP File No. #346-598 is hereby incorporated into these Specifications. The Contractor shall prepare and post signs as required by the Order of Conditions.

B. Copies of these publications are available for inspection at the office of the Engineer.

1.4 Sediment Control Guidelines

A. U.S. Environmental Protection Agency Publication 430/9-73-007 Processes, Procedure and Methods to Control Pollution Resulting from All Construction Activity.

B. Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas, A Guide for Planners, Designers and Municipal Officials, MA DEP, March 1997, modified May 2003.

1.5 Prior to Construction

A. Prior to the start of the construction, the Contractor shall submit to the Engineer the following:

1. Schedules for the construction of temporary and permanent erosion and sediment control work, clearing and grubbing, grading, structures at watercourses, and construction.

2. Methods for the construction of temporary and permanent erosion and sediment control work, clearing and grubbing, grading, structures at watercourses, and construction.

No work shall be started until control schedules and methods of operations have been submitted to the Engineer.

1.6 Review and/or Inspection of Erosion and Sedimentation Control Measures

A. All construction under this project shall be subject to review and/or inspection by the appropriate local, State and Federal agencies responsible for ensuring the adequacy of erosion Design Criteria

B. The Contractor shall conduct all construction in a manner and sequence that causes the least practical disturbance of the physical environment.

C. The Contractor shall stabilize disturbed earth surfaces in the shortest practical time and employ any and all such temporary erosion control devices as may be necessary until such time as adequate soil stabilization has been achieved or permanent erosion control devices are operational.

D. The erosion control devices specified herein and indicated on the Drawings represent the minimum required Work for erosion control. The Contractor shall add to these minimum devices any and all measures to effectively prevent migration of sediment from the work area at no additional cost to the Owner.

1.7 Construction Operations

A. When in the opinion of the Engineer it becomes necessary, the Engineer will inform the Contractor of construction procedures and operations that jeopardize erosion and sedimentation control provisions. If these construction procedures and operations are not corrected promptly, the Owner may suspend the performance of any or all construction until corrections have been made, and such suspension shall not be the basis of any claim by the Contractor for additional compensation from the Owner nor for an extension of time to complete the Work.

1.8 Submittals

A. The Contractor shall submit product data sheets for the following products:

1. Seed Mix for clean stockpiles;
2. Straw Wattles/Bales
3. Matting for Erosion Control
4. Turbidity Curtain

PART 2 - PRODUCTS

2.1 Materials

A. Temporary erosion control seed.

1. Seed shall be annual or perennial ryegrass and shall be free from primary noxious weed seeds and rough or woody materials.

B. Straw Wattle.

1. Wattles shall be straw filled to a minimum diameter of 8 inches. Wood stakes shall be a minimum of 2-inches by 2-inches nominal size and a minimum of 3-feet long.

C. Straw bales.

1. Bales shall be made of straw with forty pounds minimum weight and one hundred and twenty pounds maximum weight. They should be either wire bound or string tied.
2. Wood stakes shall be a minimum of 2-inches by 2-inches nominal size and a minimum of 3-feet long.

D. Silt Fence.

1. The silt fence shall consist of a 3-foot wide continuous length sediment control fabric, stitched to 2 1/2-foot wide, continuous length support netting, and stapled to pre-weathered oak posts installed as shown on the drawings. The oak posts shall be 2-inches by 2-inches by 4.5 feet and shall be tapered. The support netting shall be a woven industrial strength polypropylene geotextile in accordance with Geotextiles - Section 31 05 19.

E. Erosion Control Matting for Sloped Areas

1. Matting for erosion control shall be provided on all slopes of 1 foot rise to 2 feet and steeper and shall consist of undyed and unbleached smolder resistant jute yarn woven into a uniform, open, plain weave mesh. Jute matting shall be furnished in rolled strips and shall conform to the following:
    a. Width: 48 inches, plus or minus one inch.
    b. 78 warp ends per width of cloth.
    c. 41 weft ends per yard.
    d. Weight: To average between 1.22 lbs. and 1.80 lbs. per linear yard.
    e. Tolerance: plus or minus 5%
2. Stakes for pegging erosion control matting shall be sound hardwood approximately 1 inch by 3 inches. Stakes shall be free from insects and fungi and capable of remaining intact in the ground for at least two years.

F. Turbidity Curtain
    1. Turbidity curtains shall be in accordance with the detail shown on the Drawings.

PART 3 - EXECUTION

3.1 General Erosion Control Requirements

A. Prior to commencement of the work, the Contractor shall meet with the Engineer to develop a mutual understanding relative to compliance with the provisions of this Section and administration of the erosion and sediment control program.

B. The Contractor shall construct all permanent erosion and sedimentation control features at the earliest practical time as outlined in the accepted schedule. Temporary erosion and sedimentation control measures shall be used to correct conditions that develop during construction which were unforeseen, but are needed prior to installation of permanent erosion and sedimentation control features, or that are needed temporarily to control erosion or sedimentation which develops during construction operations.

C. The Engineer/ Owner has the authority to control the surface area of each material exposed by construction operations and to direct the Contractor to immediately provide permanent or temporary erosion control measures to prevent contamination of adjacent streams, watercourses, lakes, ponds, storm drainage systems or other areas of water impoundment. Every effort shall be made by the Contractor to prevent erosion on the site and abutting properties and roads.

D. Where erosion is likely to be a problem, clearing and grubbing operations shall be scheduled and performed so that grading operations and permanent erosion and sedimentation control features can follow immediately thereafter, if conditions permit; otherwise, temporary erosion and sedimentation control measures will be required between successive construction stages.

E. The Contractor shall operate all equipment and perform all construction operations so as to minimize pollution. The Contractor shall cease any operations that will increase pollution during rainstorms.

F. The Contractor shall place additional erosion and sedimentation controls as required by laws and regulations.

G. The Contractor shall use erosion controls to contain discharge from pumping operations during dewatering operations to prevent silt from entering the storm drains or receiving watercourse.

H. Contractor shall be responsible for controlling erosion within the project area and retaining sediment on-site away from sensitive environmental resources. Any fines, construction delays, remedial actions, or incarceration resulting from the Contractor's failure to comply with these provisions shall be the responsibility of the Contractor and not the Owner. The Contractor shall remove the erosion control installations upon completion of the Work or if ordered by the Engineer.

I. Failure by the Contractor to control erosion, pollution, and siltation shall be cause for the Owner to employ outside assistance to provide the necessary corrective measures. The cost of such assistance, including engineering costs, will be charged to the Contractor and appropriate deductions made from the Contractor's monthly progress payment.

J. The Contractor shall remove and properly dispose of sediment from control facilities as required by the Engineer. The Contractor shall modify and improve erosion and sedimentation control facilities and replace deteriorated straw bales and other devices as required by the Engineer.

K. Prior to removal of all siltation fencing and/or sediment control devices, the Contractor shall remove and dispose of all retained silt or other materials at no additional cost to the Owner.

L. Minimum temporary and permanent erosion and sedimentation control measures are shown on the Drawings. The Contractor shall strictly adhere to the minimum provisions shown. Additionally, temporary measures shall be selected and constructed by the Contractor in consultation with the Engineer to accommodate changing field conditions that develop during construction.

M. In disturbed areas where construction has permanently or temporarily ceased, the area must be stabilized within 14 days. If earth-disturbing activities will resume within 14 days, temporary stabilization is not required.

N. All disturbed areas shall be re-vegetated by loaming and seeding unless otherwise noted on the approved plan.

O. Slopes with exposed soils shall be stabilized by mulching, seeding or otherwise protected as the work progresses to comply with the intent of this specification. All damaged slopes shall be repaired as soon as possible. The Engineer will limit the surface area of earth material exposed if the Contractor fails to sufficiently protect the slopes to prevent pollution.

P. The Contractor shall at all times have on hand the necessary materials and equipment to provide for early slope stabilization and corrective measures to damaged slopes.

3.2 Diverting Surface Water

A. The Contractor shall build, maintain and operate all cofferdams, channels, flumes, sumps, and other temporary diversion and protection works needed to divert surface water through or around the construction site and away from the construction work while construction is in progress.

B. Storm runoff from disturbed areas must discharge into a sediment trap prior to discharge into the storm drainage system or receiving watercourse.

3.3 Temporary Erosion Control Mats

A. Erosion control mats shall be installed in accordance with the manufacturer's recommendations.

B. Areas to receive mats shall be smooth graded and compacted. Remove all rocks, dirt clods, vegetation, and other obstructions that may cause damage to the mats.

C. Unroll mats parallel to the direction of water flow and lay flat against the ground. Overlap roll ends a minimum of 1 foot with upslope mat on the top to prevent uplift of mat end by water flow. Overlay adjacent edges of mat by six (6) inches. Extend mat a minimum of 2 feet above the crest of steep slopes and anchor by excavating a 6 inch deep trench, and secure end of mat in trench using staples or pins furnished by manufacturer of mat. After securing mat end in place, backfill and compact trench.

3.4 Silt Fence

A. Silt fence shall be installed at locations as shown on the Drawings.

B. Silt fence posts shall be spaced eight (8) feet center-to-center or closer. They shall extend at least two (2) feet into the ground. They shall extend at least two (2) feet above ground. Supporting posts shall be spaced 4 feet on center, and driven at least 1 foot into the ground. Posts shall be 1-1/2 inch square or heavier wood posts or standard steel posts.

C. Fabric shall be anchored in a 46-inch deep trench dug on the upslope side of the posts. The trench shall be at least 4 inches wide. The fabric shall be laid in the trench, backfilled, and compacted.

D. Fabric rolls shall be spliced at posts. The fabric shall be overlapped 6 inches, folded over, and then securely fastened to posts by nailing or stapling.

E. Silt fences shall be inspected immediately after each storm event and at least daily during prolonged rainfall.

3.5 Catch Basin Inlet Filter

A. Catch basin inlet filters shall be installed in retained existing and proposed catch basins within the project limits and downstream of construction and as required by the Engineer. Catch basin inlet filters shall be installed immediately after the installation of all new catch basins.

B. The inset shall be secured from the surface such that the grate can be removed without the insert discharging into the structure. When emptying the filters, the contractor shall take all due care to prevent sediment form entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractor's expense.

C. The filter material shall be installed and maintained in accordance with the manufacturer's written literature and as directed by the Engineer.

3.6 Construction Entrance

A. The Contractor shall excavate the area of the entrance to a minimum of 3 inches and clear existing vegetation, roots, and other objectable material.

B. Filter fabric shall then be placed the full widths and length of the entrance followed by stone to the specified dimensions.

C. The Contractor shall maintain the entrance in a condition which will prevent the tracking or flow of dirt or mud onto public right of ways.

3.7 Seed for Erosion Control

A. The Contractor shall sow annual or perennial ryegrass at the rate of approximately 1 lb. per 1,000 sq. ft., on the pure live seed basis.

3.8 Maintenance of Erosion and Sedimentation Control Measures

A. The Contractor shall check the condition of erosion and sedimentation control devices daily and maintain them in good operating condition. Straw bales shall be replaced when deteriorated.

B. The Contractor shall inspect the condition of diversion dikes and ditches, filter berms, interceptor dikes, sediment basins, and other erosion and sedimentation control devices after each rainstorm and during major storm events. Repairs shall be made as necessary.

C. During construction, temporary outlets of the drainage systems shall direct the flow to temporary or permanent sedimentation basins.

D. Temporary soil erosion and sedimentation control devices shall be removed and adjacent areas outside the limits of grading restored upon completion of the work or when required by the Engineer.

3.9 Removal and Cleanup

A. All temporary erosion control facilities and accumulated sediments shall be removed in a neat and workmanlike manner when all disturbed areas have been satisfactorily stabilized as determined by the Engineer.

B. Straw bales should be broken up and dispersed on the adjacent ground once the Engineer has determined that all disturbed areas are satisfactorily stabilized.

C. Sediments and other earth materials resulting from the installation/operation of the soil erosion and sediment control structures shall not leave the project site unless so directed by the Engineer, but shall be consolidated below the proposed cover soil layer as practicable. Management of sediment shall be performed by the Contractor at no additional expense to the Owner. The Contractor shall perform all sediment management activities in close coordination with the Engineer.

D. The Contractor shall remove or level and grade to the extent required by the plans and to prevent any obstruction of the flow of water or any other interference with the operation of or access to the completed work.

(END OF SECTION 31 25 00)

SECTION 32 17 23

PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 Description

A. This Section specifies requirements for removal of existing pavement markings and construction of new pavement markings.

B. The work includes:

1. Removal of existing markings by approved methods.
2. Pavement surface preparation.
3. Furnishing and installing new pavement markings.

1.2 References

A. 2025 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges. This document is referenced by language "Standard Specifications", "Section", and "Subsection" in the following special provisions.

B. Current edition of the Manual of Uniform Traffic Control Devices.

1.3 Site Conditions

A. The Contractor shall cordon off areas where markings are being applied, but maintain access for vehicular and pedestrian traffic as required for other construction activities. Flagmen, barricades, drums, warning signs, warning lights, and similar devices shall be used as required.

1.4 Submittals

A. Submit material certificate to the Engineer, signed by the material producer and Contractor, certifying that materials comply with these specifications and have been approved for use by the Commonwealth of Massachusetts Highway Department (MHD).

PART 2 - PRODUCTS

2.1 Materials

A. Pavement markings shall conform to the relevant provisions of Subection 860 of Division II of the *Standard Specifications* and Manual of Uniform Traffic Control Devices, current editions.

B. Traffic markings shall be liquid thermoplastic striping material in accordance with Subsection M7.01.03 of Division III of the *Standard Specifications* and an approved product listed on the MassDOT Qualified Construction Materials List (QCML).

PART 3 - EXECUTION

3.1 Preparation

A. The Contractor shall clean the pavement of dust, dirt, old pavement markings, concrete curing compounds, and other foreign material which may be detrimental to the adhesion of the pavement marking materials.

3.2 Removal of Existing Pavement Markings

A. Existing pavement markings that conflict with the proposed markings, and those shown on the Drawings, shall be removed.

1. Pavement markings shall be removed before any change is made in the traffic pattern.
2. Any excessive damage to the pavement caused by pavement marking removal shall be repaired by the Contractor by methods acceptable to the Engineer at no additional cost to the Owner.

B. Approved methods of pavement markings removal include:

1. Sandblasting using air or water.
2. High pressure water.
3. Steam or superheated water.
4. Mechanical devices such as grinders, sanders, scrapers, scarifiers and wire brushers.

C. Painting over a pavement marking line with asphaltic liquids or paints will not be allowed unless approved by the Engineer.

D. Material deposited on the pavement from removal operations shall be removed as the work progresses. Accumulations of sand or other material which might interfere with drainage or could constitute a hazard to traffic will not be permitted.

E. Where sandblasting is used for the removal of pavement markings and the removal operation is being performed within 10 feet of a lane occupied by traffic, the residue, including dust, shall be removed immediately as the marking removal progresses by a vacuum attachment operating concurrently with the blast cleaning operation, or by other methods approved by the Engineer.

3.3 Temporary Pavement Markings

A. Temporary paint shall be applied in accordance with permanent pavement marking specifications. However, only one coat of paint shall be required to a clean, dry surface using template or striping machine. The Contractor may also propose to utilize temporary/removable pavement marking tape, as approved by the Owner or jurisdiction having authority.

B. When required, removable marking tape or pavement marking paint shall be applied on clean dry surfaces at designated locations. Tape that has become damaged and is no longer serviceable shall be replaced without additional compensation.

C. All temporary markings and striping shall be removed when no longer required. Any pavement area that has been determined to be damaged as a result of the removal operation shall be repaired at no cost to the Owner.

3.4 Pavement Marking Application

A. The material shall be applied to the pavement by equipment designed and manufactured specifically for the application of pavement markings.

B. The Contractor shall employ the services of a registered land surveyor to provide control for layout of pavement markings.

C. Paint markings shall be applied at a minimum thickness of 15+ 1 mil. Thermoplastic markings shall be applied at 125 to 188 mils thickness.

D. Pavement markings shall be applied in accordance with the layout shown on the Drawings. No paint shall be applied to new bituminous pavement until the top course has cured at least one week, and allow two weeks curing for newly installed bituminous concrete curbing.

E. All parking stalls shall be [single stripe] [double stripe], and shall be spaced equally. The line indicated on the Drawings is on the center line of the stall marking.

F. Where entire areas are to be cross-hatched, the striping shall conform to the cross-hatching shown on the Drawings.

G. All parking stall markings shall be straight with sharp corners and clean edges. Directional arrows, cross-hatching, lane divider stripes, stop lines, and lettering shall be painted white to the size, length, and spacing shown on the Drawings.

H. All markings shall be applied in one coat with brush, spray, or marking machine over clean dry pavement surfaces, when the atmospheric temperature is at or above 40°F., and when the weather is otherwise favorable in the opinion of the Engineer.

I. Use only skilled workmen who are experienced and normally employed in the work of installing pavement markings. Supply all the necessary equipment and materials required for the work.

J. The Contractor shall protect the buildings, walks, pavement, curbing, trees, shrubs, mulch, and other site fixtures from over-spray of paint and damage from pavement marking operations.

K. Traffic shall not be permitted on the pavement until the Thermoplastic markings complete cured.

(END OF SECTION 32 17 23)

SECTION 32 92 20

SEEDING

PART 1 - GENERAL

1.1 Description

A. This Section specifies requirements for topsoil and seeding for areas disturbed during construction.

B. The work includes:

1. Furnishing, spreading, and fine grading of topsoil and loam borrow
2. Application of lime and fertilizers.
3. Seeding and mulching
4. Maintenance of seeded areas.

C. All areas disturbed during construction shall be seeded and/or planted to a condition equal to that prior to the start of construction. All areas to be seeded and/or planted shall have a minimum of 6 inches of approved topsoil.

D. No topsoil shall be placed prior to acceptance of test result submittals by the Engineer.

1.2 Submittals

A. Manufacturers Product Data

1. Submit material specifications and installation instructions where applicable attesting that the following materials meet the requirements specified:
   a. Fertilizer.
   b. Seed.
   c. Lime.

B. Soil Test Reports

1. Prior to ordering the topsoil, submit soil test report to the Engineer for review and approval. Do not order materials until approval has been obtained. Delivered materials shall closely match the approved samples.

C. Certificates

1. A manufacturer's Certificate of Compliance to the specifications shall be submitted by the manufacturer with each shipment of each type of seed. These certificates shall include the guaranteed percentages of purity, weed content, and germination of the seed; the net weight of seed; and date of shipment. No seed shall be sown until the Contractor has submitted these certificates.

D. Submittal Schedule

1. Before installation:

a. Manufacturer's product data for seed.

b. Soil test reports.

c. Seed certification.

d. Hydroseed mix.

2. After installation and before acceptance

a. Maintenance Manual.

1.3 Quality Assurance

A. All work shall be performed by personnel experienced in lawn installation under the full time supervision of a qualified foreman.

B. Work shall be coordinated with all other trades on site.

1.4 Delivery, Storage, and Handling

A. Deliver material to the site in original unopened packages, showing weight, manufacturer's name, and guaranteed analysis.

B. Store materials in a manner that their effectiveness and usability will not be diminished or destroyed. Materials shall be uniform in composition, dry, unfrozen, and free flowing. Any material which has become caked or otherwise damaged or which does not meet specified requirements will be rejected.

1.5 Inspection for Acceptance

A. Conditions of Acceptance

1. Acceptance shall be given for the entire portion of the lawn areas. No partial acceptance will be given.

2. Lawns shall exhibit a uniform, thick, well-developed stand of grass. Lawn areas shall have not bare spots in excess of four inches in diameter and bare spots shall comprise no more than 2% of the total area of the lawn.

3. Lawn areas shall not exhibit signs of damage from erosion, washouts, gullies, or other causes.

4. Pavement surfaces and site improvements adjacent to lawn areas shall be clean and shall be free of spills or overspray from placing or handling of topsoil and seeding operations.

B. Inspection and Acceptance

1. Upon written request of the Contractor, the Engineer will inspect all lawn areas to determine completion of work. This request must be submitted at least five days prior to the anticipated inspection date.

2. If the lawn areas are not acceptable, the Engineer will indicate corrective measures to be taken, and shall extend the maintenance period as necessary for the completion of the work. The Contractor shall request a second inspection of the lawns after corrective measures have been accomplished. This process shall be repeated until the total lawn area being inspected is acceptable.
3. When the lawn areas are acceptable, a meeting of the Contractor and Owner's Representative will be arranged to accept the lawn work. A final inspection will be a part of this meeting. At this meeting, the Contractor shall be furnished with a written acceptance of the lawn section being approved. The Contractor shall turn over maintenance of the lawn areas to the Owner at this meeting.
4. Following the acceptance of lawns, the Contractor shall provide the Owner with access to all lawn areas as required for the Owner's maintenance work.

C. Site Cleanup

1. The Contractor shall leave the site in a clean and neat condition. Final acceptance will not be granted until this condition is met.

PART 2 - PRODUCTS

2.1 Topsoil

A. Topsoil shall conform to the requirements of Section 31 00 00 – Earthwork.

2.2 Soil Conditioning Materials

A. Lime: Lime shall be an approved agricultural limestone containing no less than 50% total carbonates, and 25% total magnesium with a neutralizing value of at least 100%. The material shall be ground to such a fineness that 40% will pass through a No. 100 U.S. Standard Sieve, and 98% will pass through a No. 20 U.S. Standard Sieve. The lime shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any lime that becomes caked or otherwise damaged (making it unsuitable for use) will be rejected.

B. Fertilizer: Fertilizer shall be a complete, standard product complying with state and federal fertilizer laws. The fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis, and submitted to the Engineer for approval.

1. Fertilizer shall contain the following minimum percentage of available plant food by weight: 10% nitrogen, 10% phosphorus, 10% potash, in which 75% of the nitrogenous elements shall be derived from organic sources or ureaform.
2. Exact percentages of fertilizer may vary in accordance with the soil test report.
3. Any fertilizer that becomes caked or otherwise damaged (making it unsuitable for use) will be rejected.

C. Superphosphate: Superphosphate shall be composed of finely ground phosphate rock, as commonly used for agricultural purposes, and containing not less than 20% available phosphoric acid. Superphosphate shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis and submitted to the Engineer for approval. Any superphosphate that becomes caked or otherwise damaged (making it unsuitable for use) will be rejected.

2.3 Water

A. Water shall be furnished by the Contractor, suitable for irrigation, and free from ingredients harmful to plant life. Hoses and other watering equipment required for the work shall be furnished by the Contractor.

2.4 Seed

A. Seed shall be: fresh, clean, and selected from the previous year's crop; shall have a maximum weed seed content of 1%; shall comply with applicable federal and state seed laws; and shall furnished and delivered premixed in unopened containers in the following proportions:

		Percent Proportion	Percent Germination Minimum	Percent Purity Minimum
1.	For Lawns:			
	Creeping Red Fescue	50	85	95
	Kentucky Bluegrass (improved varieties)	40	85	90
	Manhattan Perennial Rye	10	90	95
3.	For Temporary Applications:			
	Annual Rye	60	90	95
	Perennial Rye	40	90	95

B. Any species substitutions shall be with a species having similar characteristics and native to New England. Substation changes in the mix shall be approved by the Engineer.

2.5 Mulch

A. Wood Cellulose Fiber Mulch

1. Mulch to cover hydroseeded areas shall be fiber-processed from whole wood chips manufactured specifically for standard hydraulic mulching equipment. Fiber shall not be produced from recycled material such as sawdust, paper, or cardboard.
2. Moisture content shall not exceed 10%, plus or minus 3%, as defined by the pulp and paper industry standards. Fiber shall have a water holding capacity of not less than 900 grams of water per 100 grams fiber.
3. Mulch shall disperse into a uniform slurry when mixed with water. Mulch shall be nontoxic to plant life or animal life.

4. Mulch shall contain a non-petroleum based tackifier and a green dye for visual monitoring during application, but non-injurious to plant growth.

2.6 Hydroseed Mix

A. The Contractor shall submit a certified statement as to number of lbs. of fertilizer, amounts and types of grass seed, and processed fiber, per 100 gallons of water.

PART 3 - EXECUTION

3.1 Seed Bed Preparation

A. Grade all lawn areas to finish grades as indicated on the Drawings. When no grades are shown, areas shall have a smooth and continual grade between existing or fixed controls and elevations shown on Drawings. Roll, scarify, and rake as required to obtain uniform, even lawn surfaces. All lawn areas shall slope to drain. Finish grades shall be approved by the Engineer.

B. If no new topsoil is required, thoroughly loosen soil in areas to be seeded to a minimum depth of 6 inches with approved power or hand equipment. Remove rocks, debris, clods and other undesirable substances, and maintain grading and drainage patterns.

C. When topsoil is required, place topsoil on previously scarified subsoil to a minimum depth of 6 inches. Subsoil shall be cleaned of debris and stones larger than 2 inches prior to topsoil spreading.

D. Apply fertilizer, superphosphate, and lime, at rates recommended by the testing agency and approved by the Engineer. Thoroughly and evenly incorporate fertilizer and lime into the soil to a depth of 3 inches by discing or other approved methods. In areas inaccessible to power equipment, fertilizer and lime shall be incorporated into the soil by manual methods. At existing trees, the depth shall be adjusted to avoid disturbance of the tree roots.

E. Seeding shall be done immediately after final grading, provided the bed has remained in a good, friable condition, and has not become muddy or compacted. Any undulations or irregularities in the surface resulting from fertilizing, liming, tilling, or other causes, shall be regraded prior to seeding. The surface shall be free of stones, cleared of all trash, debris, roots, brush, wire, grade stakes, and other objects that would interfere with establishment of lawn and lawn maintenance operations.

3.2 Hydroseed Bed Preparation

A. Prepare seed bed for hydroseeding the same as for seeding, but do not incorporate fertilizer into the top 3 inches of topsoil.

B. Hydroseeding shall be applied with a spray machine designed for this purpose and approved by the Engineer.

3.3 Seeding

A. Seeding shall be done between April 1 to June 1, or between August 15 to October 15, except as otherwise authorized in writing by the Engineer.

B. All disturbed areas not otherwise developed shall be seeded.

C. Seeding shall not be done during windy or inclement weather.

3.4 Manual Seeding

A. Sow lawn seed uniformly with an approved mechanical seeder at the rate of 5 lbs. per 1,000 square feet. Culti-packer or approved similar equipment may be used to cover the seed and to form the seed bed in one operation. In areas inaccessible to the Culti-packer, the seeded ground shall be lightly raked with flexible rakes and rolled with a water ballast roller. Seeding shall be done in two directions at right angles to each other.

B. In areas having slopes 3:1 or steeper, and in drainage swales, the Contractor shall carry out a separate overseeding operation immediately after sowing the specified seed mix. The overseeding shall be sown at the rate of 3 lbs. per 1,000 square feet. Seeded areas requiring additional erosion control, shall be covered with an approved, biodegradable erosion control fabric and the fabric firmly anchored in place.

3.5 Hydroseeding

A. Designated areas shall be hydroseeded only after written approval of the finished grading by the Engineer.

B. Fertilizer shall be added to the hydroseeding slurry at the rate of 5 lbs. per 1,000 square feet.

C. Seed shall be added to the hydroseeding slurry at the rate of 75 lbs. per acre.

D. Wood cellulose fiber mulch shall be added to the hydroseeding slurry at the rate of 2 tons per acre.

E. A mobile tank with a capacity of at least 500 gallons shall be filled with water, and the required amounts of seed, wood cellulose mulch, and fertilizer. The slurry shall be thoroughly mixed by means of positive agitation in the tank. The slurry shall be applied by means of a centrifugal pump using the turret or hose application technique from the mobile tank. The hose or turret shall be equipped with a seeding nozzle of a proper design to ensure even distribution of the solution over the area to be seeded and shall be operated by a person thoroughly familiar with this type of seeding operation.

3.6 Maintenance and Protection

A. Maintenance of seeded areas shall begin immediately after installation. Maintenance includes watering, weeding, mowing and edging, reseeding, disease and insect pest control, repair of all erosion damage, and any other procedures consistent with good horticultural practice, required to ensure normal, vigorous, and healthy growth. Maintenance shall continue until final acceptance of the work.

B. Maintenance shall also include all temporary protection fences, barriers, signs, and all other work incidental to proper maintenance.

C. Scattered bare spots will be allowed up to a maximum of 2% of any lawn area, provided none are larger than 72 square inches. After the grass has sprouted, all bare areas shall be re-seeded repeatedly until all areas are covered with a satisfactory growth of grass. At the time of the first

cutting, lawn should be mowed not less than 2-1/2 inches high. Do not remove more than one-third of the grass blade. All lawns shall receive at least three mowings before acceptance.

D. The seeded areas shall be maintained in a continuous moist condition, satisfactory for good germination and growth of grass until acceptance.

E. Six weeks after the seeded areas have become established, fertilizer shall be applied over the entire area.

(END OF SECTION 32 92 20)

SECTION 34 80 00

ALTERATION TO BRIDGE STRUCTURE NO. W-40-029 (2D8)

PART 1 - GENERAL

1.1 Description

A. The work under this item shall conform to the relevant provisions of the 2025 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges, and the specific requirements stipulated below for the component parts of this item. For those component parts where no specific requirements are stipulated, the Standard Specifications shall apply, except for payment.

B. Work under this item shall include all materials, equipment and labor needed to construct the following:

1. Provide facilities, labor, materials, tools, equipment, appliances, transportation, supervision, and related work necessary to complete the work specified in this Section, and as shown on the Plans.
2. Concrete repairs to culvert sidewalls, wingwalls and deck surface.
3. Furnish and install the cast-in-place concrete sidewalk, safety curb, and moment slabs.
4. Fabricate, transport and install the precast highway guardrail transitions.
5. Fabricate, transport, and install the S3-MTL4 bridge railing, and all necessary ancillary items.
6. Design, furnish, and install all necessary ancillary items, in accordance with the respective schedule of component parts.
7. Examine all other Sections of the Specifications for requirements which affect work of this Section, whether or not such work is specifically mentioned in this Section.
8. Coordinate work with that of all other trades or contracts affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

C. The work does not include any items listed separately in the proposal. Payment for materials shown on the Plans as being part of this culvert structure or which may be incidental to its construction and are not specifically included for payment under another item shall be considered incidental to the work performed under this item and shall be included in the unit price of the component of which they are part.

1.2 Reference Standards

A. 2025 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges. This document is referenced by language “Standard Specifications”, “Section”, and “Subsection” in the following special provisions.

1.3 Submittals

A. Submit description of methods and sequence of placement of each respective item included in the improvement of the Bridge Structure.

B. Demolition plan for the removal of the existing reinforced concrete sidewalks and steel railings.

C. Prior to the start of demolition and in accordance with Subsection 5.02 of Division I of the *Standard Specifications*.

D. Demolition shall not begin prior to the approval of the construction procedure by the Engineer.

E. Proposed protection measures for removal of steel railings, reinforced concrete and concrete cleaning.

F. Prior to the start of demolition and in accordance with Subsection 5.02 of Division I of the *Standard Specifications*.

G. Demolition shall not begin prior to the approval of the construction procedure by the Engineer.

H. Shall include, but not be limited to, drawings that indicate the measures proposed for protecting individuals and property, environmental protection, dust and debris control, and noise control. Type and location of all measures shall be included.

I. Proposed drill and grout installation and testing procedures.

J. Installation shall not begin prior to the approval of the Engineer.

K. Shall include, but not be limited to, sequence of installation and testing, and all materials and equipment necessary for proper installation.

L. Shop drawings for all precast concrete shall be in accordance with *Contract Provision 03 41 00 – Precast Concrete*.

M. Shop drawings for all cast-in-place concrete shall be in accordance with *Contract Provision 03 30 55 – Cast-In-Place Concrete*.

N. Shop drawings for all Steel Reinforcement for Structures – Epoxy Coated

1. Prior to fabrication and for approval in accordance with Subsection 5.02 of Division I of the *Standard Specifications*.
2. Fabrication shall not begin prior to approval of the shop drawings by the Engineer.
3. Shall include, but not be limited to, layout plans, bend diagrams, and typical sections.

O. Shop Drawings for Metal Bridge Railing (3 Rail), Steel (Type S3-MTL4)

1. Prior to fabrication and for approval in accordance with Section 5.02 of the Standard Specifications
2. Fabrication shall not begin prior to approval of the shop drawings by the Engineer.
3. Shall include, but not be limited to, layout plans, typical sections and ancillary items.

PART 2 - PRODUCTS

2.1 Cement Concrete Mix Design

A. Cement concrete materials shall conform to the relevant provisions of Subsection 901 of Division II of the *Standard Specifications*. The following cement concrete mix designs shall be used to complete the project:

1. 5000 PSI, 3/4 IN., 685 HP Cement Concrete
    a. Sidewalk, safety curb, moment slabs, and precast highway guardrail transitions
2. 4000 PSI, 3/8 IN., 660 Cement Concrete
    a. Partial Depth Repairs

2.2 Steel Reinforcement for Structures - Epoxy Coated

A. All reinforcing steel and support devices shall be epoxy coated and shall conform to the relevant provisions of Subsection M8.01.07 of Division III of the *Standard Specifications*.

B. Accessories supporting epoxy coated bars, including mechanical reinforcing bar splicers, shall also be epoxy coated.

2.3 Drilling and Grouting Dowels

A. Dowel material shall conform to the relevant provisions of Subsection 901 of Division II of the *Standard Specifications*.

B. Grout shall be non-shrink cementitious grout chosen from the MassDOT Qualified Construction Material List and approved by the Engineer.

C. Epoxy shall be chosen from the MassDOT Qualified Construction Material List and approved by the Engineer.

2.4 Membrane Waterproofing for Bridge Decks

A. Membrane waterproofing shall conform to the relevant provisions of Subsection M9.08.0 of Division III of the *Standard Specifications*.

2.5 Metal Bridge Railing (3 Rail), Steel (Type S3-MTL4)

A. S3-MTL4 Bridge Railing materials shall conform to the relevant provisions of Subsection M8.13.1 of Division III of the *Standard Specifications*.

B. All steel, except for the 5/8" anchor plate and fasteners, shall be galvanized and painted black. Anchor plate shall be galvanized only. Heads of 7/8" diameter round head bolts shall be painted to match the rail.

PART 3 - EXECUTION

3.1 5000 PSI HP Cement Concrete

A. The work under this heading shall conform to the relevant provisions of Section 901 of the Standard Specifications, *Contract Provision 03 41 00 – Precast Concrete* and *Contract Provision 03 30 55 – Cast-In-Place Concrete*, as required. Work shall consist of furnishing and installing high performance concrete for the following bridge elements:

1. Highway guardrail transitions
2. Cast-in-place moment slab coping
3. Sidewalks within the limits of culvert work
4. Concrete Repairs

3.2 Steel Reinforcement for Structures (Epoxy Coated)

A. Steel reinforcement for structures shall conform to Section 910 of the Standard Specifications and the following:

1. Mechanical reinforcing bar splicers shall be used as necessary at construction joints and other locations as indicated on the Plans. Mechanical reinforcing bar splicers shall be considered as incidental to the work involved in furnishing and placing of reinforcing steel. All mechanical reinforcing bar splicers shall be chosen from the MassDOT Qualified Construction Materials List and submitted to the Engineer for approval.
2. Accessories supporting epoxy coated bars, including mechanical reinforcing bar splicers, shall also be epoxy coated. Specified clearances, cover requirements, and all other reinforcing steel geometry requirements shall be maintained. Individual and continuous slab bolsters and chairs shall be of type to suit various conditions encountered and must be capable of supporting a 300-lb load without damage or permanent distortion.
3. No materials shall be fabricated or shipped prior to approval of the shop drawings by the Engineer.

3.3 Drilling and Grouting Dowels

A. Dowels to be epoxy grouted shall be prepared and installed in accordance with the Manufacturer's recommendations. Materials and installation plan to be submitted to the Engineer for approval prior to installing the dowels.

B. All dowel holes into existing concrete shall be cored with a diamond tipped bit. Impact and percussion type drills will require prior approval of the Engineer. The inner surfaces of the dowel holes shall be scored to develop sufficient keying action. The method of scoring of the dowel hole's inner surfaces shall be subject to the approval of the Engineer. Holes shall be blown clear of any debris and must have the approval of the Engineer prior to the placement of any grout material.

C. The coring operation shall be performed without damage to any portion of the existing structure that is to remain in place. Any damage to any portion of the existing structure that is

to remain in place shall be repaired to a condition equal to or better than that existing prior to the beginning of the Contractor's operations and shall be repaired at the Contractor's expense.

D. The grout, cored hole diameter, and embedment depth shall be field tested, as specified below, prior to approval for use on this project.

E. A test dowel bar shall be installed in existing concrete culvert and tested by the Contractor for pullout. The pullout force shall correspond to 50% of the yield strength of the bar as to prevent splitting and cracking of the concrete. If the tested bar pulls out or if the surrounding concrete shows signs of cracking, the Contractor must adjust the hole diameter, embedment length, and/or grouting material to meet this test requirement, as well as being responsible for repairs of any damage. Testing shall not be made on a production dowel bar.

F. All testing of the drilled and grouted dowels shall be performed by the Contractor and is incidental to the work under this heading. The method of applying the tension test load to the dowels shall conform to ASTM E488. The details of the testing equipment used and the locations and details of the test dowel shall be submitted to the Engineer for approval. The Contractor shall perform this test as soon as possible in order to eliminate delays in construction due to the approval process. Dowels shall not be ordered until the embedment lengths have been approved by the Engineer.

G. The Contractor shall strictly follow the recommendations of the manufacturer for mixing and placing the grout material prior to the placement of the dowels. The Contractor shall, at a minimum, adhere to the ACI code requirements regarding minimum and maximum temperatures while placing the grout. Any excessive grout around the hole after placement of the dowel shall be struck off smooth while the grout is still fresh.

H. The Contractor shall arrange with the materials manufacturer or distributor to have the services of a competent field representative at the work site prior to any coring of the proposed dowel holes to instruct the work crews in proper dowel installation procedures.

I. The field representative shall remain at the job site after work commences and continue to instruct until the representative, the Contractor and the Engineer are satisfied that the crew has mastered the technique of installing the dowels successfully. The representative shall make periodic visits to the project as the work progresses and shall confer on each visit with the Contractor, Inspector and/or Engineer. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Engineer.

J. The Contractor shall be completely responsible for the expense of the services of the required field representative and the Contract Unit Price shall be considered as full compensation for all costs in connections therewith.

K. The Contractor shall have no claim for any variation in the diameter of the hole, the method of coring the hole, or the type of grout used in anchoring the proposed dowels.

3.4 S3-TL4 Bridge Railing

A. Installation of the railing shall conform to the relevant provisions of Section 975 of the Standard Specifications.

B. The railing is to be fabricated and installed in accordance with the Plans and shall not begin without approval of the Engineer.

(END OF SECTION 34 80 00)

APPENDIX A

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #

Winchester
City/Town

A. General Information

Please note: this form has been modified with added space to accommodate the Registry of Deeds Requirements

1. From: Winchester
Conservation Commission

2. This issuance is for (check one): a. ☒ Order of Conditions b. ☐ Amended Order of Conditions

3. To: Applicant:

a. First Name | b. Last Name

Town of Winchester
c. Organization

71 Mt. Vernon St.
d. Mailing Address

Winchester | MA | 01890
e. City/Town | f. State | g. Zip Code

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

4. Property Owner (if different from applicant):

Same | a. First Name | b. Last Name

c. Organization

d. Mailing Address

e. City/Town | f. State | g. Zip Code

5. Project Location:

Shore Road at Aberjona River
a. Street Address

Winchester
b. City/Town

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #

Winchester
City/Town

63
c. Assessors Map/Plat Number

NA
d. Parcel/Lot Number

Latitude and Longitude, if known: 42d45569Nm s
d. Latitude

71d13569Wm s
e. Longitude

A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):
Not Applicable - Roadway Layout
a. County

b. Certificate Number (if registered land)

c. Book

d. Page

7. Dates: 2/26/25
a. Date Notice of Intent Filed

4/8/25
b. Date Public Hearing Closed

4/8/25
c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):
Town of Winchester Shore Road (Bridge No. W-40-029), Sheets 1-8
a. Plan Title

VHB
b. Prepared By

Kristofer G. Kretsch
c. Signed and Stamped by

2/25/25
d. Final Revision Date

As Noted
e. Scale

f. Additional Plan or Document Title

g. Date

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

a. ☐ Public Water Supply
b. ☒ Land Containing Shellfish
c. ☒ Prevention of Pollution
d. ☐ Private Water Supply
e. ☒ Fisheries
f. ☒ Protection of Wildlife Habitat
g. ☐ Groundwater Supply
h. ☐ Storm Damage Prevention
i. ☒ Flood Control

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #

Winchester
City/Town

a. ☒ the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

B. Findings (cont.)

Denied because:

b. ☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☐ Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) — a. linear feet

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☒ Bank	135 a. linear feet	135 b. linear feet	135 c. linear feet	135 d. linear feet
5. ☐ Bordering Vegetated Wetland	a. square feet	b. square feet	c. square feet	d. square feet
6. ☒ Land Under Waterbodies and Waterways	1060 a. square feet	1060 b. square feet	1060 c. square feet	1060 d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☒ Bordering Land Subject to Flooding	3426 a. square feet	3426 b. square feet	3426 c. square feet	3426 d. square feet

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP: 346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #

Winchester
City/Town

	Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8.	☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
	Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9.	☒ Riverfront Area	3426 a. total sq. feet	3426 b. total sq. feet		
	Sq ft within 100 ft	3426 c. square feet	3426 d. square feet	3426 e. square feet	3426 f. square feet
	Sq ft between 100-200 ft	0 g. square feet	0 h. square feet	0 i. square feet	0 j. square feet

B. Findings (cont.)

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. ☐ Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12. ☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. ☐ Coastal Beaches	a. square feet	b. square feet	cu yd c. nourishment	cu yd d. nourishment
14. ☐ Coastal Dunes	a. square feet	b. square feet	cu yd c. nourishment	cu yd d. nourishment
15. ☐ Coastal Banks	a. linear feet	b. linear feet		
16. ☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17. ☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. ☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. ☐ Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #

Winchester
City/Town

20. ☐ Fish Runs — Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above

a. c/y dredged | b. c/y dredged

21. ☐ Land Subject to Coastal Storm Flowage

a. square feet | b. square feet

22. ☐ Riverfront Area

a. total sq. feet | b. total sq. feet

Sq ft within 100 ft: c. square feet | d. square feet | e. square feet | f. square feet

Sq ft between 100-200 ft: g. square feet | h. square feet | i. square feet | j. square feet

B. Findings (cont.)

23. ☐ Restoration/Enhancement *:

a. square feet of BVW | b. square feet of salt marsh

24. ☐ Stream Crossing(s):

a. number of new stream crossings | b. number of replacement stream crossings

* **#23**. If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. The work is a maintenance dredging project as provided for in the Act; or
   b. The time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid

for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.

c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.

5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).

6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on _____ unless extended in writing by the Department.

7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.

C. General Conditions Under Massachusetts Wetlands Protection Act

8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

"Massachusetts Department of Environmental Protection" [or, "MassDEP"]

"File Number 346-598 "

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #
Winchester
City/Town

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.

12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

13. The work shall conform to the plans and special conditions referenced in this order.

14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.

15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #
Winchester
City/Town

19. The work associated with this Order (the "Project")
    (1) ☐ is subject to the Massachusetts Stormwater Standards
    (2) ☒ is NOT subject to the Massachusetts Stormwater Standards

If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:

a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:

i. all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;

ii. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;

iii. any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

iv. all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;

v. any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement) for the

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #
Winchester
City/Town

Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following:

i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and

ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and

3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.

i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

See attqached Special Conditions 1 - 17.

20. For Test Projects subject to 310 CMR 10.05(11), the applicant shall also implement the monitoring plan and the restoration plan submitted with the Notice of Intent. If the conservation commission or Department determines that the Test Project threatens the public health, safety or the environment, the applicant shall implement the removal plan submitted with the Notice of Intent or modify the project as directed by the conservation commission or the Department.

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☒ Yes ☐ No
2. The Winchester Conservation Commission hereby finds (check one that applies):

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #

Winchester
City/Town

a. ☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

1. Municipal Ordinance or Bylaw | 2. Citation

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

b. ☒ that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

Winchester Wetlands Bylaw
1. Municipal Ordinance or Bylaw | 2. Citation

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

See attached Special Conditions 1 - 17.

E. Signatures

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

And Winchester Wetlands Bylaw #598

Provided by MassDEP:
346-598
MassDEP File #

eDEP Transaction #

Winchester
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

4/8/25
1. Date of Issuance

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4/8/25
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signature	Printed Name
	DAVID W MILLER
Martha Hoyt	Martha Hoyt
	NATHAN NIMS
Tracy Olson	Tracy Olson
	WILLIAM BAND
Ann M. Stoker	ANN M. STOKER

☑ by hand delivery on 4/16/25
Date

☐ by certified mail, return receipt requested, on
Date

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #
Winchester
City/Town

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #

Winchester
City/Town

G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

Project Location | MassDEP File Number

Has been recorded at the Registry of Deeds of:

County | Book | Page

for: Property Owner

and has been noted in the chain of title of the affected property in:

Book | Page

In accordance with the Order of Conditions issued on:

Date

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
346-598 & Winchester Wetlands Bylaw #598
MassDEP File #

eDEP Transaction #

Winchester
City/Town

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

Special Conditions
DEP File No. 346 - 598
Winchester Wetlands Bylaw No. WWB – 598

1. All work shall be undertaken as described in the Notice of Intent, attachments thereto and plans referred to herein, except to the extent modified by the following Special Conditions.

2. The Order of Conditions shall apply to any successor in interest or successor in control of the project.

3. The Applicant shall ensure that an individual designated "Site Superintendent" for the purposes of this Order of Conditions, or a designee, is present on-site at all times during which any earth-disturbing activity is conducted within the Buffer Zone and/or the resource areas. The Site Superintendent shall ensure that the Applicant complies with the conditions set forth herein. The Applicant shall notify the Commission in writing of the Site Superintendent's name, address and business telephone number.

4. There shall be a preconstruction meeting, and the Applicant shall notify Conservation Administrator Elaine Vreeland at (781) 721-7152, Evreeland@winchester.us, and Martha Hoyt at: Hoyt_house@icloud.com at least five business days prior to the commencement of construction that all tree protection and erosion control measures have been installed, so that the Administrator or Commissioner may inspect and approve their location and sufficiency, and to ensure that all conditions of the Order are understood.

5. Members and agents of the Conservation Commission shall be permitted to enter upon and inspect the premises during regular construction hours and at other times upon reasonable notice, to evaluate compliance with the provisions of this Order of Conditions. Members and agents shall notify the Site Superintendent of their presence and shall observe any reasonable requests by the Site Superintendent regarding their presence in construction areas.

6. The Applicant shall complete all work in strict compliance with the project plans. Any deviation from said plans or field conditions shall be reported to the Conservation Commission in order in writing for the Commission to decide as to whether or not the deviation(s) taken singularly or taken as a whole require an amendment to this Order of Conditions, or a new filing.

7. The Applicant shall furnish the construction contractor(s) with a copy of this Order of Conditions, the Notice of Intent and all attachments thereto (including, without limitation, any plans and specifications submitted therewith), to be kept on-site by the construction contractor until the issuance of a Certificate of Compliance. The Applicant shall obtain the construction contractor's written acknowledgement that it has read and understands this Order of Conditions. The Conservation Administrator and members of the Conservation Commission will be available to answer any questions that may arise concerning the requirements and provisions of this Order of Conditions. This Order of Conditions shall be annexed to and included in all construction contracts and subcontracts which are subject to this Order of Conditions. A copy of the contractor's certification shall be delivered to the Commission prior to the commencement of work.

8. The Applicant shall install and maintain suitable erosion control at the limit of work line, to the satisfaction of the Commission or its agent. These erosion control measures shall remain in place until all earth work is completed and exposed areas are revegetated, or until the Commission issues a written determination that any or all parts of these controls are no longer necessary.

9. The Applicant shall immediately correct and control any erosion problems occurring on the site during the course of construction and shall implement any further erosion and sedimentation controls found to be necessary by the Conservation Commission during the course of construction.

10. In the event that during the course of work, the Applicant uncovers soils appearing to contain any of the following: ash; domestic or industrial refuse or debris; stained soils; materials containing oil, hazardous substances, or hazardous waste as defined in applicable federal, state and local statues, regulations and bylaws; construction fill or debris; animal hides or the remains thereof; any other solid or liquid waste bearing material, then the Site Superintendent shall (i) cease all activity in the areas surrounding such exposed soils, (ii) contact the Conservation Administrator, the assigned Commissioner, the Board of Health, (iii) stake straw bales around and suitably cover the area of suspect soils to

prevent erosion or leaching from such area, and (iv) secure the area of suspect soils against intrusion. At the discretion of the Conservation Commission, the Applicant shall obtain such sampling and laboratory analysis as the Commission deems necessary to characterize the suspect soils. Any work to be done shall be in accordance with the Massachusetts Contingency Plan. This Order of Conditions may be amended thereafter to require such further action(s) by the Applicant as the Conservation Commission deems necessary, in light of such soil analysis, to protect the interests of the Wetlands Protection Act, the Winchester Wetland Bylaw, or the public health and welfare.

11. The Applicant shall submit proof to the Commission that the Order of Conditions has been recorded prior to the commencement of work.

12. All pesticides within the 100' buffer zone to a resource area, or within a resource area, shall be used in conformity with the product label and state law. Any applicator hired by the Applicant shall be licensed by the state. No fertilizer, pesticides or herbicides shall be used within 25' of a resource area. In the remainder of the 100' buffer zone, only fertilizers with water insoluble nitrogen shall be used, and their use shall be kept to a minimum. No fertilizer with phosphorus shall be used. This condition shall be ongoing and shall appear in the Certificate of Compliance.

13. The following information shall be submitted with the Request for Certificate of Compliance as appropriate: (Please contact the Conservation office)

    a. A certification from a Massachusetts Registered Professional (Civil) Engineer stating that construction complies in all respects with this Order of Conditions and setting forth deviations, if any exist.

    b. Final Reports, As-Built Plans. Upon completion of the work, two sets of field surveyed final as-built site plans prepared, signed and stamped by a Massachusetts Registered Professional Land Surveyor or a Massachusetts Registered Professional (Civil) Engineer and include the following information: The Engineer may include additional information not set forth herein when deemed reasonably necessary:

    c.

        i. Rim elevation, location, size, length, slope, type, and inverts and outlets for all drainage structures and pipes, including roof drains;

        ii. Location of all building footprints and lot lines;

        iii. Location of all driveways, walkways, patios, retaining walls, pools, and other impervious surfaces;

iv. Applicant shall provide an Elevation Certificate stamped by a Registered land Surveyor documenting conditions post construction. The Elevation Certificate shall be submitted to the Town of Winchester prior to the closeout of the building permit.

v. In addition, the as-built plans shall meet the requirements of Section 5.8d of the Rules and Regulations Regarding the Use of Public Sewer and Storm Drain Regulations in the Town of Winchester, Massachusetts, be stamped by a Project Engineer accompanied by a certification that:

Based on site observations by myself or an employee under my direct supervision and/or based on information provided by a registered land surveyor, I hereby certify that all grading, stormwater management systems, water, sewer and other utilities have been constructed in substantial conformance with the approved plans, except as noted herein. I further certify that the drainage and stormwater management system, as constructed, will operate (1) as designed by the engineer of record and (2) as approved by the Town."

d. Photographs of all phases of the installation of the stormwater structure shall be submitted with the Request for Certificate of Compliance.

e. Recording. Applicants shall record the As-Built Plans at the Middlesex County Registry of Deeds with the Certificate of Compliance within 30 days of the completion of the project.

14. The contractor shall provide a coffer dam plan prior to the commencement of work.

15. Invasive vines shall be removed by hand in the area located northwest of the proposed work.

16. No less than 10 native species of shrubs shall be planted in the area located northwest of the proposed work.

17. The Aberjona River is mapped as diadromous fish migratory habitat and is subject to time of year restrictions established by the Department of Marine Fisheries, running from April 1st to June 30 to protect critical life stages of marine fisheries species. Work associated with opening the gates on the Central Falls Dam is anticipated to comply with the springtime of year restrictions to accommodate fish passage. The fall time of year restriction is associated with juvenile return, which is not anticipated to be impacted by the dam drawdown.

APPENDIX B

16421.00_HD(COV).DWG Plotted on 30-Apr-2025 2:03 PM

PLAN AND PROFILE OF

SHORE ROAD OVER ABERJONA RIVER

(BRIDGE NO. W-40-029)

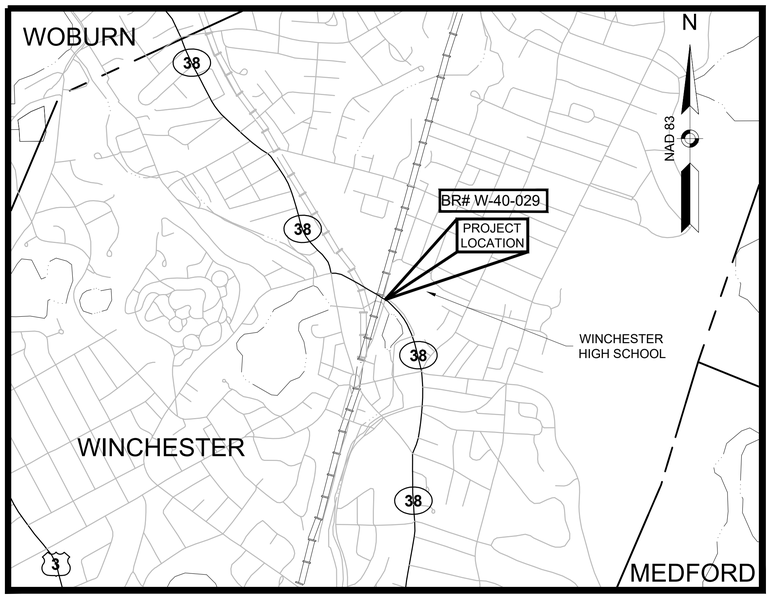
IN THE TOWN OF

WINCHESTER

MIDDLESEX COUNTY

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	LEGEND & ABBREVIATIONS
3	TYPICAL SECTIONS
4	CONSTRUCTION PLAN
5	CURB TIE & GRADING PLANS
6 - 7	CONSTRUCTION DETAILS
8 - 12	TEMPORARY TRAFFIC CONTROL PLANS
	BRIDGE PLANS
13	BRIDGE GENERAL PLAN
14	BRIDGE GENERAL NOTES
16 - 17	BRIDGE CONSTRUCTION DETAILS
21	RAILING DETAILS



0 1000 2000 3000 4000

SCALE: 1" = 1000'

THESE PLANS ARE SUPPLEMENTED BY THE MASSDOT 2025 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

ISSUED FOR BIDS

Vanasse Hangen Brustlin, Inc.
260 Arsenal PL #2
PO Box 9151
Watertown, MA 02471
617.924.1770

DESIGNED BY	DATE	
JDT	04/30/2025	
DRAWN BY	SCALE	
SLL	1' = 20'	
CHECKED BY	SHEET	JOB NO.
KK	1 OF 21	16421.00

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C	C	CABLE MANHOLE
D	D	DRAINAGE MANHOLE
E	E	ELECTRIC MANHOLE
G	G	GAS MANHOLE
M	M	MISC MANHOLE
S	S	SEWER MANHOLE
T	T	TELEPHONE MANHOLE
W	W	WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT BARRIER
		COIR LOG SEDIMENT BARRIER
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	*	EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

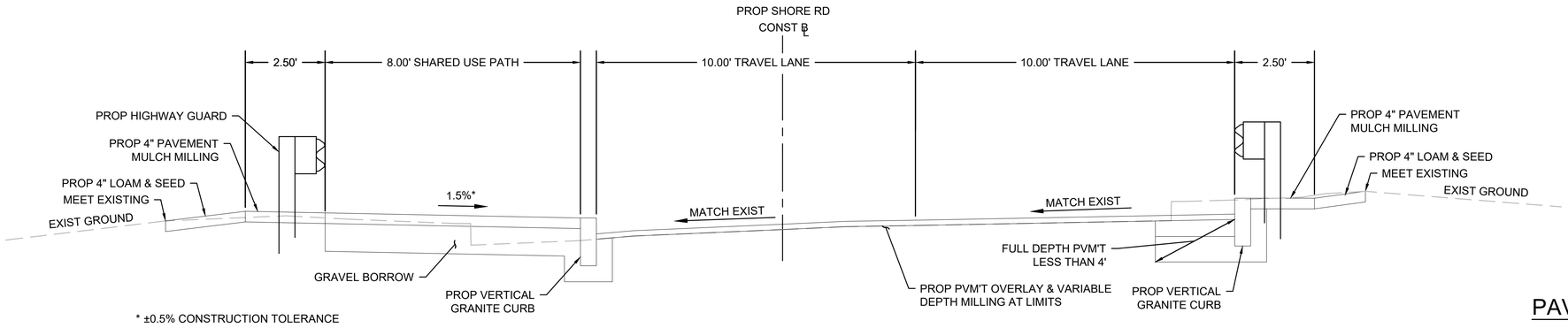
WINCHESTER
SHORE ROAD
LEGEND & ABBREVIATIONS
SHEET 2 OF 21

GENERAL NOTES:

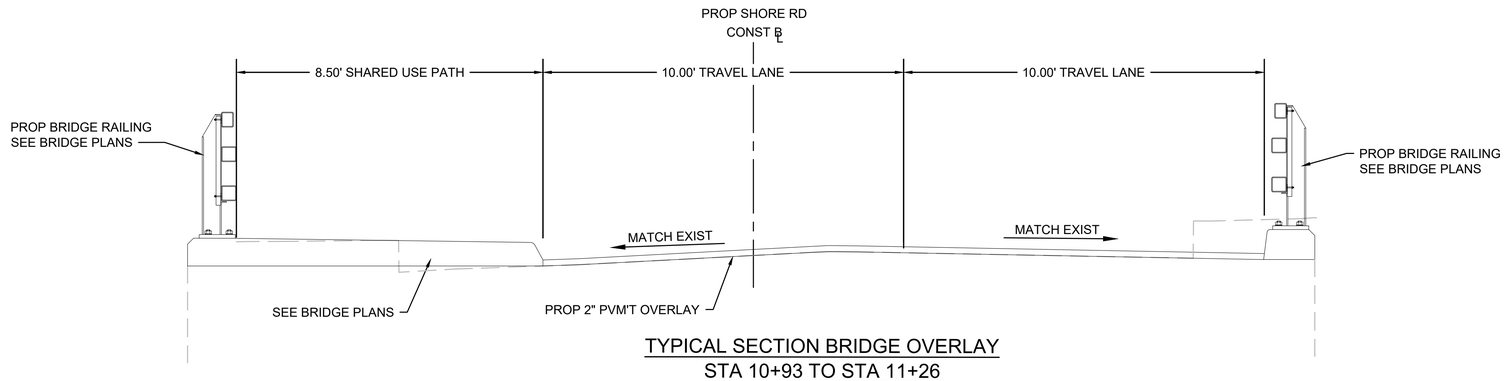
1. EXISTING CONDITIONS AND TOPOGRAPHICAL INFORMATION FROM AN ACTUAL FIELD SURVEY CONDUCTED BY VHB, INC. IN JULY OF 2024.
2. THE HORIZONTAL CONTROL IS BASED ON THE MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM AND THE NATIONAL GEODETIC SURVEY (NAD83). ALL ELEVATION IS US FEET, REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD88).
3. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND GRADES IN THE FIELD BEFORE COMMENCING WORK AND PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
4. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES, IF REQUIRED.
5. TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
6. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
7. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
8. JOINTS BETWEEN NEW ASPHALT CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALER AND BACKSANDED.
9. EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
10. EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED.
11. THE CONTRACTOR SHALL EXERCISE DUE CARE WHEN WORKING AROUND ALL PROPERTY BOUNDS WHICH ARE TO REMAIN. SHOULD ANY DAMAGE TO A BOUND RESULT FROM THE ACTIONS OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE THE BOUND REPLACED AND/OR REALIGNED BY A LICENSED PROFESSIONAL SURVEYOR AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
12. DISPOSAL OF ALL SURPLUS MATERIAL SHALL BE AS APPROVED BY THE ENGINEER AND OWNER.

16421.00_HDILEG).DWG Plotted on 30-Apr-2025 2:04 PM

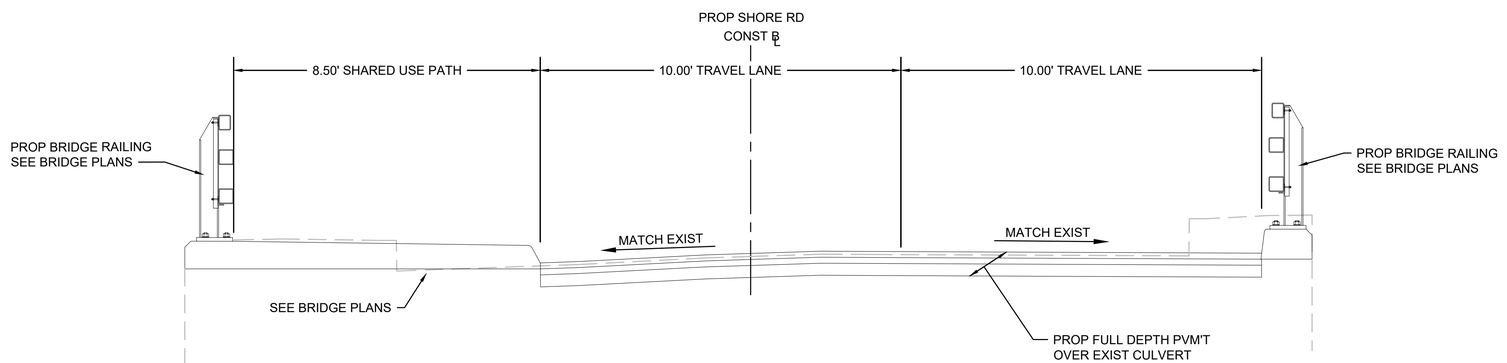
16421.00_HD(TYP).DWG Plotted on 30-Apr-2025 2:04 PM



TYPICAL SECTION MILL AND OVERLAY
STA 10+56 TO STA 10+93
STA 11+35 TO STA 11+83



TYPICAL SECTION BRIDGE OVERLAY
STA 10+93 TO STA 11+26



TYPICAL SECTION FULL DEPTH PAVEMENT
STA 11+26 TO STA 11+35

PAVEMENT NOTES

PROPOSED PAVEMENT OVERLAY

SURFACE:	2" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC-12.5-P) OVER
MILLING:	VARIABLE DEPTH MILLING (2" MAX AT LIMITS)

PROPOSED BRIDGE OVERLAY (OVER CULVERT CELLS 2 & 3)

SURFACE:	2" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC-12.5-P) OVER MEMBRANE WATERPROOFING

PROPOSED FULL DEPTH PAVEMENT (OVER CULVERT CELL 1)

SURFACE:	2" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC-12.5-P) OVER
BASE:	4" SUPERPAVE BASE COURSE 25.0 (SBC-25.0) OVER
*SUBBASE:	VARIABLE DEPTH (2" MIN) GRAVEL BORROW, TYPE B, OVER MEMBRANE WATERPROOFING

PROPOSED FULL DEPTH PAVEMENT <4'

SURFACE:	2" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC-12.5-P) OVER
BASE:	6" HIGH EARLY STRENGTH CEMENT CONCRETE BASE OVER
*SUBBASE:	8" GRAVEL BORROW, TYPE B

PROPOSED CEMENT CONCRETE WALK / SHARED USE PATH

SURFACE:	4" CEMENT CONCRETE AIR ENTRAINED 4,000 PSI, $\frac{3}{4}$", 610
*SUBBASE:	8" GRAVEL BORROW, TYPE B

*WHERE EXISTING GRAVEL IS FOUND TO BE SUITABLE, THE EXISTING GRAVEL MAY BE USED IN PROPOSED SUBBASE, AFTER APPROVAL BY THE ENGINEER

NOTES:

1. ALL HOT MIX ASPHALT PAVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITIONS OF SECTION 450 HOT MIX ASPHALT AND SECTION M3 ASPHALTIC MATERIALS OF THE MASSDOT STANDARD SPECIFICATIONS.
2. ASPHALT EMULSION FOR TACK COAT SHALL BE SPRAY APPLIED FOR DOUBLE OVERLAP COVERAGE AT 0.08 GALLONS PER SQUARE YARD OVER MILLED SURFACES AND 0.07 GALLONS PER SQUARE YARD OVER SMOOTH SURFACES.
3. HMA JOINT ADHESIVE SHALL BE APPLIED IN SURFACE COURSE AT ALL VERTICAL COLD JOINTS PRIOR TO HMA PAVING.
4. SURFACE PAVING TO BE COMPLETED AT THE END OF THE PROJECT AND AS DIRECTED WHEN IT CAN BE PLACED IN ITS ENTIRETY.
5. ALL CASTINGS SHALL BE ADJUSTED TO SURFACE COURSE PRIOR TO PAVING WITH HMA JOINT SEALANT.

HIGHWAY GUARD DETAILS

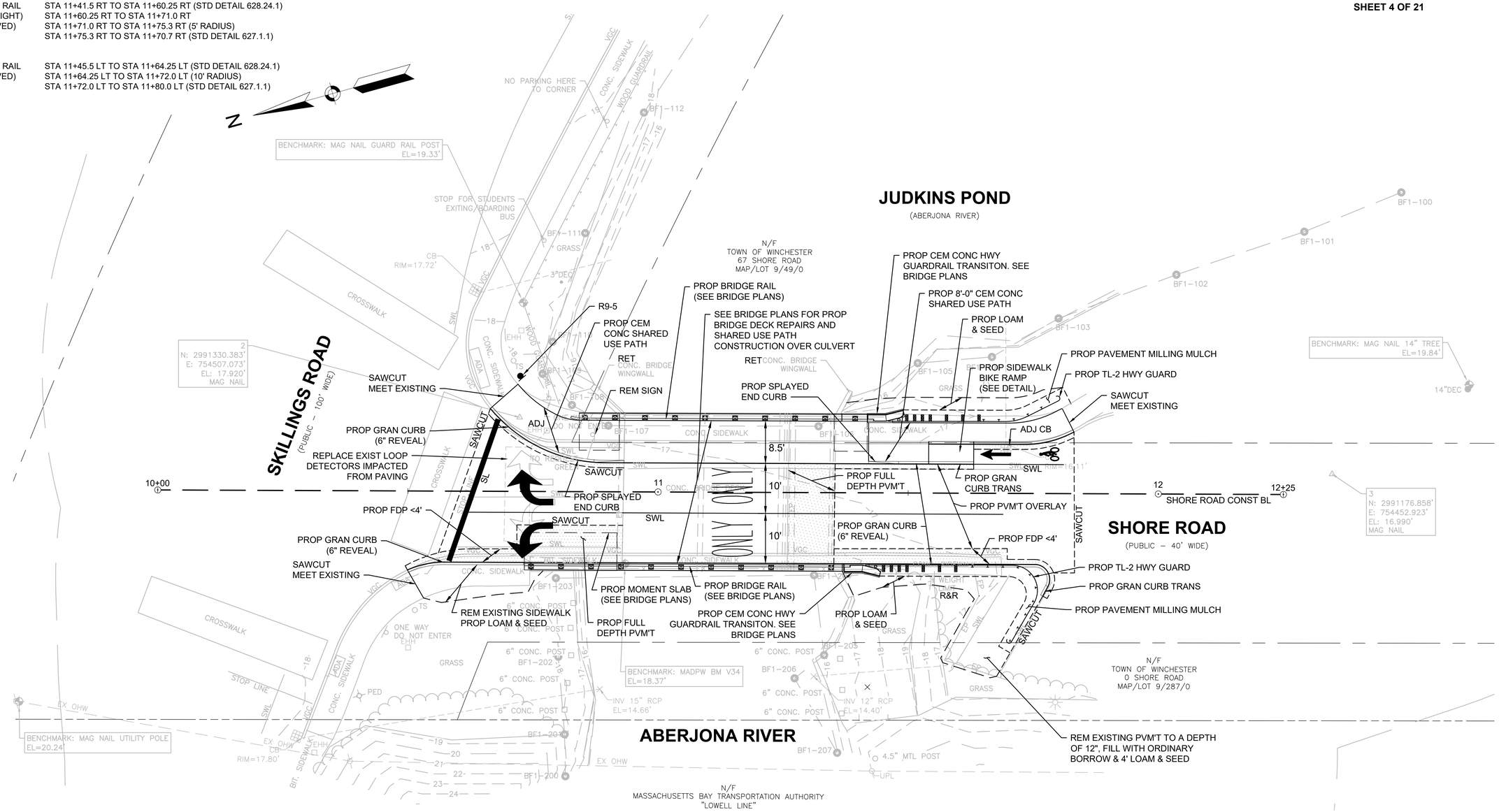
NOTE: ALL HIGHWAY GUARD SHALL BE INSTALLED IN ACCORDANCE WITH THE 2025 MASSDOT STANDARD CONSTRUCTION DETAILS AND SECTION 601 OF THE 2025 MASSDOT STANDARD SPECIFICATIONS.

TRANSITION TO BRIDGE RAIL	STA 11+41.5 RT TO STA 11+60.25 RT (STD DETAIL 628.24.1)
TL-2 HWY GUARD (STRAIGHT)	STA 11+60.25 RT TO STA 11+71.0 RT
TL-2 HWY GUARD (CURVED)	STA 11+71.0 RT TO STA 11+75.3 RT (5' RADIUS)
TRAILING ANCHORAGE	STA 11+75.3 RT TO STA 11+70.7 RT (STD DETAIL 627.1.1)

TRANSITION TO BRIDGE RAIL	STA 11+45.5 LT TO STA 11+64.25 LT (STD DETAIL 628.24.1)
TL-2 HWY GUARD (CURVED)	STA 11+64.25 LT TO STA 11+72.0 LT (10' RADIUS)
TRAILING ANCHORAGE	STA 11+72.0 LT TO STA 11+80.0 LT (STD DETAIL 627.1.1)

WINCHESTER
SHORE ROAD
CONSTRUCTION PLAN
SHEET 4 OF 21

16421.00_HD(CONST).DWG Plotted on 30-Apr-2025 2:04 PM


N
BENCHMARK: MAG NAIL GUARD RAIL POST EL=19.33'
NO PARKING HERE TO CORNER
STOP FOR STUDENTS EXITING/BOARDING BUS
CROSSWALK
CB RIM=17.72'
SKILLINGS ROAD
(PUBLIC – 100' WIDE)
2 N: 2991330.383' E: 754507.073' EL: 17.920' MAG NAIL
JUDKINS POND
(ABERJONA RIVER)
N/F TOWN OF WINCHESTER 67 SHORE ROAD MAP/LOT 9/49/0
PROP CEM CONC HWY GUARDRAIL TRANSITON. SEE BRIDGE PLANS
PROP BRIDGE RAIL (SEE BRIDGE PLANS)
PROP 8'-0" CEM CONC SHARED USE PATH
SEE BRIDGE PLANS FOR PROP BRIDGE DECK REPAIRS AND SHARED USE PATH CONSTRUCTION OVER CULVERT
PROP LOAM & SEED
PROP CEM CONC SHARED USE PATH
R9-5
RET CONC. BRIDGE WINGWALL
PROP PAVEMENT MILLING MULCH
PROP SIDEWALK BIKE RAMP (SEE DETAIL)
PROP TL-2 HWY GUARD
BENCHMARK: MAG NAIL 14" TREE EL=19.84'
SAWCUT MEET EXISTING
REM SIGN
PROP SPLAYED END CURB
ADJ CB
PROP GRAN CURB (6" REVEAL)
REPLACE EXIST LOOP DETECTORS IMPACTED FROM PAVING
SAWCUT
8.5'
10+00
11
12
12+25
SHORE ROAD CONST BL
PROP FULL DEPTH PVM'T
PROP GRAN CURB TRANS
PROP PVM'T OVERLAY
PROP FDP <4'
10'
SHORE ROAD
(PUBLIC – 40' WIDE)
PROP MOMENT SLAB (SEE BRIDGE PLANS)
PROP BRIDGE RAIL (SEE BRIDGE PLANS)
REM EXISTING SIDEWALK PROP LOAM & SEED
PROP FULL DEPTH PVM'T
PROP CEM CONC HWY GUARDRAIL TRANSITON. SEE BRIDGE PLANS
PROP LOAM & SEED
R&R
PROP TL-2 HWY GUARD
PROP GRAN CURB TRANS
PROP PAVEMENT MILLING MULCH
BENCHMARK: MADPW BM V34 EL=18.37'
N/F TOWN OF WINCHESTER 0 SHORE ROAD MAP/LOT 9/287/0
BENCHMARK: MAG NAIL UTILITY POLE EL=20.24'
ABERJONA RIVER
REM EXISTING PVM'T TO A DEPTH OF 12", FILL WITH ORDINARY BORROW & 4' LOAM & SEED
3 N: 2991176.858' E: 754452.923' EL: 16.990' MAG NAIL
N/F MASSACHUSETTS BAY TRANSPORTATION AUTHORITY "LOWELL LINE"

CONSTRUCTION NOTES:
1. ALL SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS OTHERWISE NOTED.
2. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC UNLESS OTHERWISE NOTED.

10 0 10 20
SCALE IN FEET

SIGN SUMMARY CHART

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER		
R9-5	12"	18"	USE PED SIGNAL	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			1	WHITE	BLACK	BLACK	P5-2	1.50

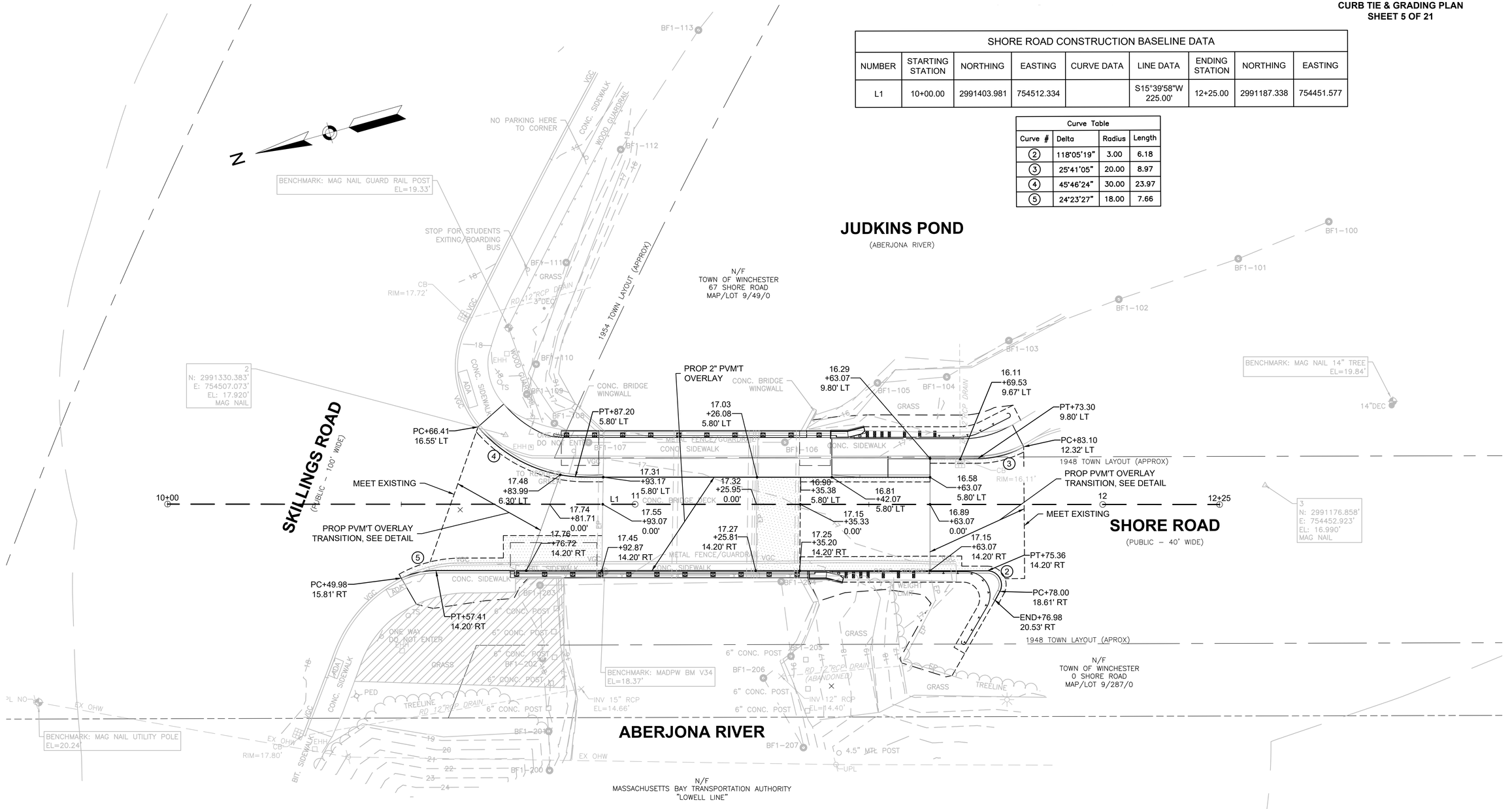
NOTES:
1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED; THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR MOUNTING REQUIREMENTS; AND THE 2017 MASSDOT STANDARD SIGNS BOOK, AS AMENDED.
2. ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.

WINCHESTER
SHORE ROAD
CURB TIE & GRADING PLAN
SHEET 5 OF 21

16421.00_HD(GRAD).DWG Plotted on 30-Apr-2025 2:05 PM

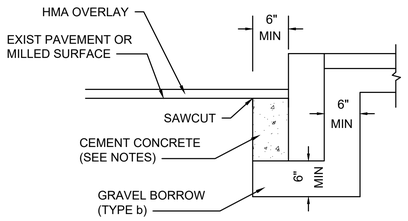
SHORE ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	2991403.981	754512.334		S15°39'58"W 225.00'	12+25.00	2991187.338	754451.577

Curve Table			
Curve #	Delta	Radius	Length
(2)	118°05'19"	3.00	6.18
(3)	25°41'05"	20.00	8.97
(4)	45°46'24"	30.00	23.97
(5)	24°23'27"	18.00	7.66



FOR CONSTRUCTION PROFILE:
SEE SHEET NO. #

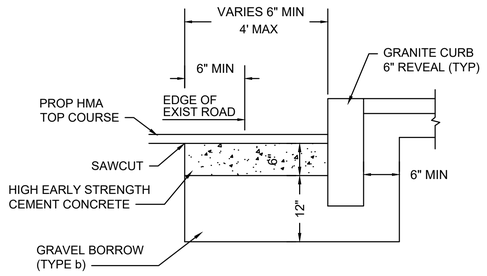
16421.00_HD(DET).DWG Plotted on 30-Apr-2025 2:05 PM



NOTES:
1. SAWCUT 6" FROM CURB LINE AND REMOVE EXISTING PAVEMENT AND GRAVEL. REPLACE WITH CEMENT CONCRETE.
2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE.

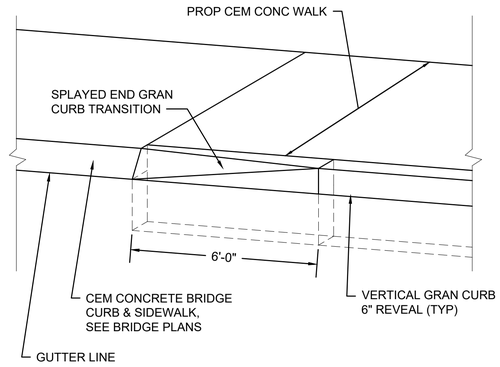
GRANITE CURB IN EXISTING PAVEMENT - WITH OVERLAY

SCALE: N.T.S.



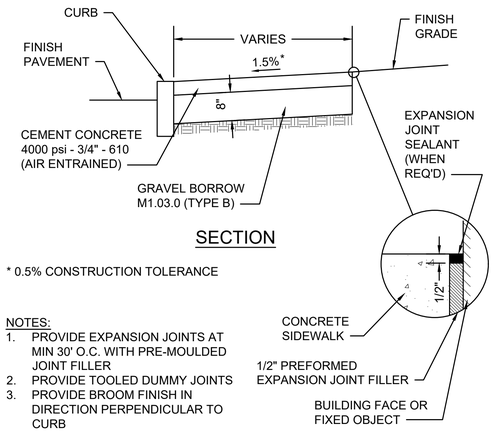
GRANITE CURB IN FULL DEPTH PAVEMENT LESS THAN 4' WIDE

SCALE: N.T.S.


PROP CEM CONC WALK
SPLAYED END GRAN CURB TRANSITION
6'-0"
CEM CONCRETE BRIDGE CURB & SIDEWALK, SEE BRIDGE PLANS
VERTICAL GRAN CURB 6" REVEAL (TYP)
GUTTER LINE

GRANITE CURB SPLAYED END

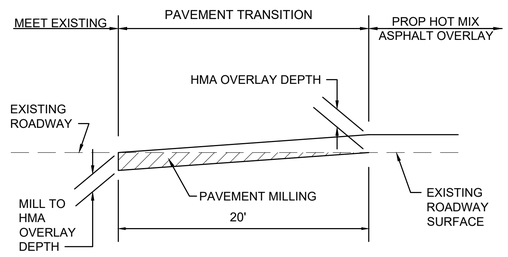
SCALE: N.T.S.



NOTES:
1. PROVIDE EXPANSION JOINTS AT MIN 30' O.C. WITH PRE-MOULDED JOINT FILLER
2. PROVIDE TOOLED DUMMY JOINTS
3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB

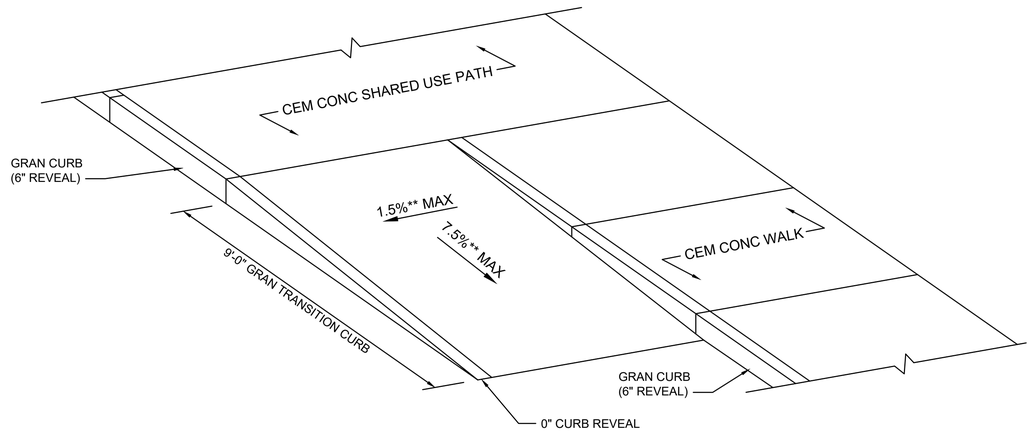
CEMENT CONCRETE SIDEWALK

SCALE: N.T.S.



OVERLAY TRANSITION LONGITUDINAL SECTION

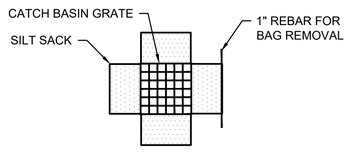
SCALE: N.T.S.



SIDEWALK BIKE RAMP

SCALE: N.T.S.

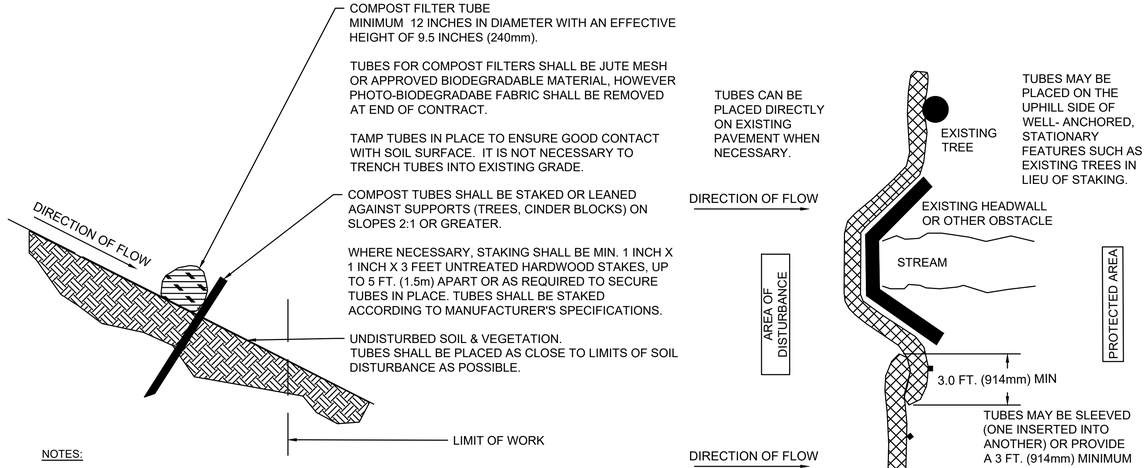
16421.00_HD(DET).DWG Plotted on 30-Apr-2025 2:05 PM



NOTES:
1. INSTALL SILT SACK IN EXISTING CATCH BASINS, BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. GRATE TO BE PLACED OVER SILT SACK.
3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED

INLET PROTECTION - SILT SACK IN CATCH BASIN

SCALE: N.T.S.


COMPOST FILTER TUBE
MINIMUM 12 INCHES IN DIAMETER WITH AN EFFECTIVE HEIGHT OF 9.5 INCHES (240mm).
TUBES FOR COMPOST FILTERS SHALL BE JUTE MESH OR APPROVED BIODEGRADABLE MATERIAL, HOWEVER PHOTO-BIODEGRADABE FABRIC SHALL BE REMOVED AT END OF CONTRACT.
TAMP TUBES IN PLACE TO ENSURE GOOD CONTACT WITH SOIL SURFACE. IT IS NOT NECESSARY TO TRENCH TUBES INTO EXISTING GRADE.
COMPOST TUBES SHALL BE STAKED OR LEANED AGAINST SUPPORTS (TREES, CINDER BLOCKS) ON SLOPES 2:1 OR GREATER.
WHERE NECESSARY, STAKING SHALL BE MIN. 1 INCH X 1 INCH X 3 FEET UNTREATED HARDWOOD STAKES, UP TO 5 FT. (1.5m) APART OR AS REQUIRED TO SECURE TUBES IN PLACE. TUBES SHALL BE STAKED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
UNDISTURBED SOIL & VEGETATION.
TUBES SHALL BE PLACED AS CLOSE TO LIMITS OF SOIL DISTURBANCE AS POSSIBLE.
DIRECTION OF FLOW
LIMIT OF WORK
TUBES CAN BE PLACED DIRECTLY ON EXISTING PAVEMENT WHEN NECESSARY.
DIRECTION OF FLOW
AREA OF DISTURBANCE
DIRECTION OF FLOW
CURVE ENDS UPHILL TO PREVENT DIVERSION OF UNFILTERED RUN-OFF.
EXISTING TREE
TUBES MAY BE PLACED ON THE UPHILL SIDE OF WELL- ANCHORED, STATIONARY FEATURES SUCH AS EXISTING TREES IN LIEU OF STAKING.
EXISTING HEADWALL OR OTHER OBSTACLE
STREAM
PROTECTED AREA
3.0 FT. (914mm) MIN
TUBES MAY BE SLEEVED (ONE INSERTED INTO ANOTHER) OR PROVIDE A 3 FT. (914mm) MINIMUM OVERLAP AT ENDS OF TUBES TO JOIN IN A CONTINUOUS BARRIER.
UNTREATED HARDWOOD STAKED (TYP)
PLAN

NOTES:
1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.
4. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
5. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER.

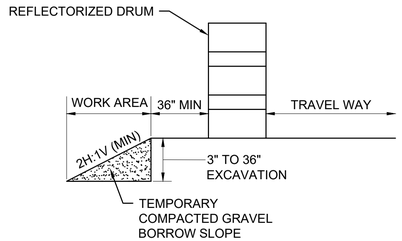
EROSION CONTROL BARRIER - COMPOST FILTER TUBE

SCALE: N.T.S.

16421.00_HD(TTCP_GEN).DWG Plotted on 30-Apr-2025 2:05 PM

GENERAL NOTES

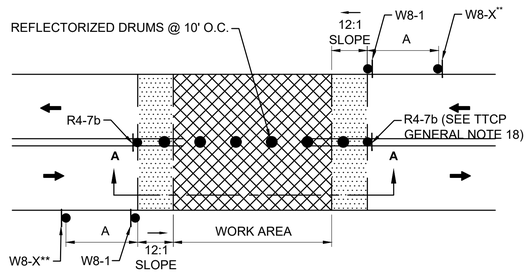
1. ALL CONSTRUCTION SIGNING, TEMPORARY TRAFFIC CONTROL DEVICES, AND ROADSIDE ELEMENTS SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS AMENDED, THE MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS, THE LATEST REVISIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, (AASHTO) ROADSIDE DESIGN GUIDE, AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, AND NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. WORK HOURS SHALL BE 7:00AM TO 3:00PM MONDAY THRU FRIDAY UNLESS OTHERWISE APPROVED BY THE TOWN.
3. NO WORK SHALL OCCUR WITHIN THE PUBLIC WAY THE DAY BEFORE, AFTER OR ON A STATE RECOGNIZED HOLIDAY UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4. ALL TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (MAAB) AND AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) REQUIREMENTS AND PUBLIC RIGHTS-OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
5. ALL DRUMS OUTSIDE TAPERS SHALL BE SET AT 20' ON CENTER MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
6. ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN SAFE AND REASONABLE ABUTTER ACCESS. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS AND OTHER TRAFFIC CONTROL DEVICES, GRADING AND TEMPORARY PAVEMENT FOR PASSAGE OF PEDESTRIAN, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORKING HOURS, TO MAINTAIN SUCH ACCESS.
7. REFLECTORIZED CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.
8. CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.
9. THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OR RESTRICTION OF ACCESS.
10. FOR DROP-OFFS 3" OR LESS WITHIN THE CLEAR ZONE, CONDITION MAY BE MITIGATED WITH W8-9 (LOW SHOULDER) SIGN OR TEMPORARY CHANNELIZATION DEVICES. FOR DROP-OFFS GREATER THAN 3" BUT NO MORE THAN 36", DETERMINE WHETHER IT IS MORE COST EFFECTIVE TO INSTALL BOTH W8-9 SIGN AND TEMPORARY CHANNELIZATION DEVICES IN ACCORDANCE WITH MASSDOT WORK ZONE SAFETY GUIDE OR W8-9 SIGN WITH A 2H:1V (MIN) WEDGE OR TO REMOVE THE HAZARD. FOR DROP-OFFS 36" OR GREATER USE TEMPORARY BARRIER IN ACCORDANCE WITH MASSDOT WORK ZONE POSITIVE PROTECTION GUIDELINES.
11. CONSTRUCTION CLEAR ZONE SHALL BE IN ACCORDANCE WITH MASSDOT BOSTON TRAFFIC GUIDELINES AS FOLLOWS:
    4' IF POSTED SPEED IS LESS THAN 35 MPH
12. ALL TEMP BARRIERS SHALL MEET OR EXCEED MASH TL-2 REQUIREMENTS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
13. THE CONTRACTOR SHALL PROVIDE TEMPORARY IMPACT ATTENUATORS TO PROTECT ALL BLUNT-ENDS OF TEMPORARY BARRIER OR AS REQUIRED BY THE ENGINEER. ALL TEMPORARY IMPACT ATTENUATORS SHALL BE DESIGNED TO MEET OR EXCEED MASH TEST LEVEL 2 (TL-2).
14. 11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
15. SIGNS INSTALLED ON PORTABLE STANDS REQUIRE 12 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
16. SIGNS INSTALLED ON PORTABLE STANDS PLACED AMONG CHANNELIZATION DEVICES REQUIRE A 36 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
17. SIGNS MOUNTED ON POSTS REQUIRE A MINIMUM 84 INCH MOUNTING HEIGHT FROM THE ROADWAY OR SIDEWALK SURFACE TO THE BOTTOM OF THE SIGN. CONTRACTOR SHALL MAINTAIN A MINIMUM SIDEWALK HORIZONTAL CLEAR WIDTH OF 36" AT ALL TIMES.
18. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN MASH CRASH TESTED SIGN SUPPORTS AND INSTALLED IN ACCORDANCE WITH THE MUTCD.SIGNS SHALL NOT BE MOUNTED TO OR LEANED AGAINST DRUMS OR CONES.
19. W21-7 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF AREAS WHERE UTILITY CASTINGS HAVE BEEN RAISED IN ADVANCE OF PAVING OPERATIONS OR AS REQUESTED BY THE ENGINEER.
20. W8-15 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF PAVEMENT MILLING AREAS OR AS REQUESTED BY THE ENGINEER.
21. CONTRACTOR SHALL SECURE WORK AREAS BY APPROPRIATE MEANS, TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.
22. THERE IS NO DESIGNATED BICYCLE LANE ON THE ROADWAY WITHIN THE PROJECT LIMITS. BICYCLES ARE EXPECTED TO SHARE THE ROAD WITH GENERAL VEHICULAR TRAFFIC DURING STAGE 1. DURING STAGE 2, BICYCLES SHALL USE END-STATE BIKE FACILITIES ON THE EAST SIDE OF SHORE ROAD.



NOTE:
1. CONTRACTOR SHALL INSTALL W8-9 SIGN ON ALL ROADWAYS 350 FEET IN ADVANCE OF THE START OF DROP-OFF CONDITION.

TYPICAL ROADWAY DROP-OFF PROTECTION

SCALE: NTS



SECTION A-A

NOTES:
1. SQUARE OFF THE FULL WIDTH OF THE ROADWAY AT THE END OF WORK DAY.
2. ** CONTRACTOR SHALL INSTALL W8-1 AT LIMIT OF EXCAVATION AND A W8-3, W8-8, W8-15, OR W8-24 SIGN, AS APPROPRIATE, ON ALL ROADWAYS IN ADVANCE OF THE TRANSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. R4-7b SIGNS AND DRUMS MAY BE OMITTED AT THE DISCRETION OF THE ENGINEER.

TEMPORARY PAVEMENT TRANSITION

SCALE: NTS

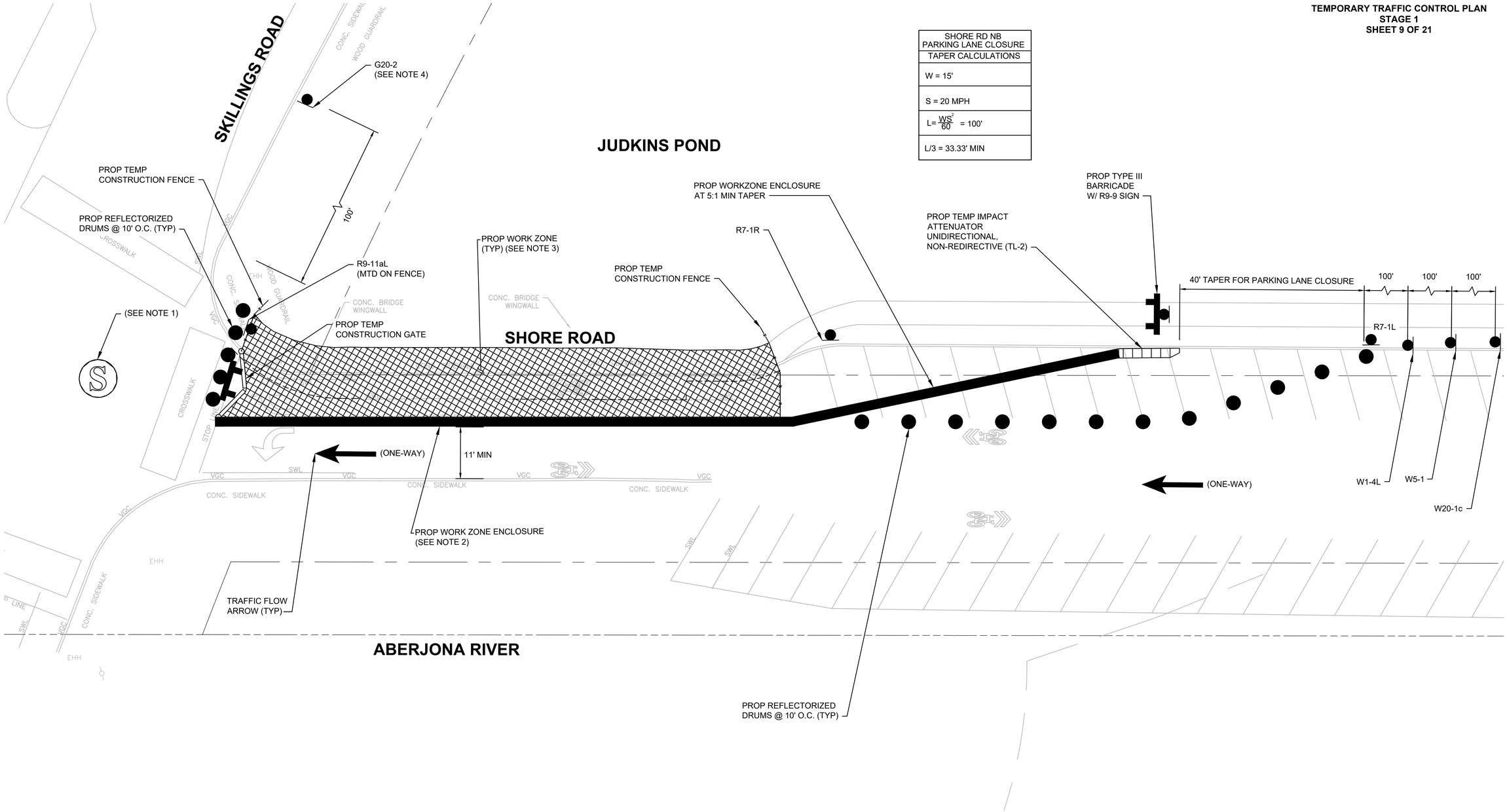
LEGEND	
S	TRAFFIC SIGNAL
●	REFLECTORIZED DRUM
	TEMPORARY CONSTRUCTION SIGN
▲	TRAFFIC CONE
	TYPE III BARRICADE
	WORKZONE ENCLOSURE
	TEMPORARY IMPACT ATTENUATOR (TYPE NOTED)
	WORK AREA (PUBLIC ACCESS RESTRICTED)
	TRANSITION/BUFFER AREAS
	TRAFFIC FLOW
	PEDESTRIAN ROUTE
	CONSTRUCTION FENCE
	TEMPORARY PEDESTRIAN BARRICADE
NTS	NOT TO SCALE
TTCP	TEMPORARY TRAFFIC CONTROL PLAN

LANE TAPER LENGTH FORMULAS	
L=	TAPER LENGTH IN FEET
W=	WIDTH OF ROADWAY TO BE SHIFTED OR REDIRECTED IN FEET
S=	POSTED SPEED LIMIT IN MPH
POSTED SPEED	
40 MPH OR LESS	
$L=\frac{WS^2}{60}$	

WINCHESTER
SHORE ROAD
TEMPORARY TRAFFIC CONTROL PLAN
STAGE 1
SHEET 9 OF 21

16421.00_HD(TTCP_STAGE1).DWG Plotted on 30-Apr-2025 2:05 PM

SHORE RD NB PARKING LANE CLOSURE
TAPER CALCULATIONS
W = 15'
S = 20 MPH
$L=\frac{WS^2}{60}$ = 100'
L/3 = 33.33' MIN



NOTES:

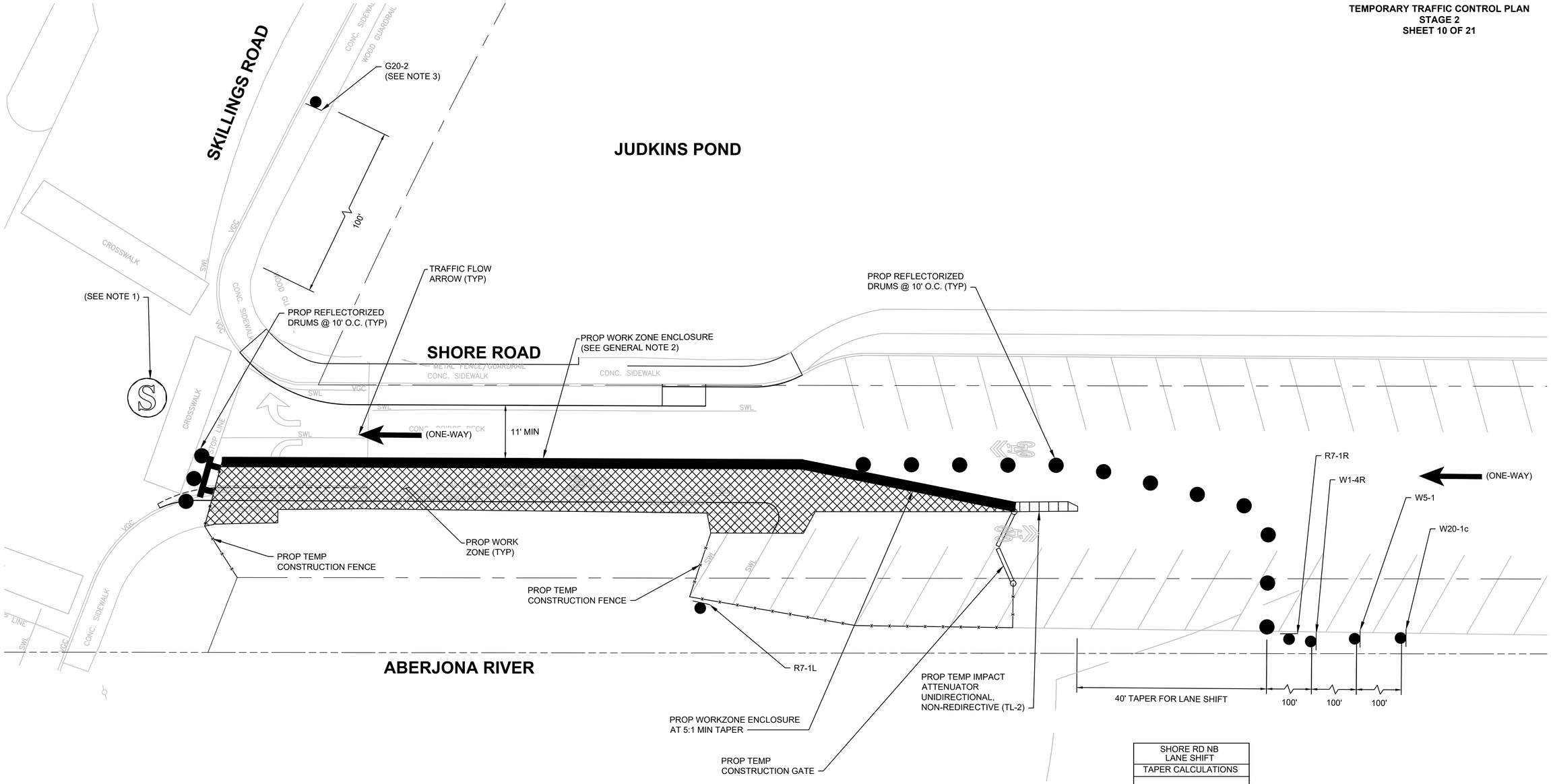
1. MAINTAIN EXISTING SIGNAL AT ALL TIMES.
2. PROPOSED WORK ZONE ENCLOSURE SHALL BE TEMPORARY CONCRETE BARRIER UNLESS APPROVED BY THE TOWN. USE OF THIS BARRIER IS TO PROVIDE PHYSICAL SEPARATION BETWEEN TRAFFIC AND WORK AREA AND DOES NOT GUARANTEE FULL PROTECTION OF ANY KIND BEHIND THE SAID BARRIER. BARRIER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. ALL BLUNT ENDS OF THE BARRIER SHALL BE PROTECTED BY AN APPROVED IMPACT ATTENUATOR AT ALL TIMES.
3. SIDEWALK SHALL BE CLOSED FOR THE DURATION OF THIS SETUP. REFER TO PEDESTRIAN DETOUR PLAN ON SHEET 11 FOR ADDITIONAL INFORMATION.
4. CONTRACTOR SHALL INSTALL G20-2 SIGN ALONG SKILLING ROAD WESTBOUND AT 100' SPACING.

0 10 20 30 40

SCALE: 1" = 10'

WINCHESTER
SHORE ROAD
TEMPORARY TRAFFIC CONTROL PLAN
STAGE 2
SHEET 10 OF 21

16421.00_HD(TTCP_STAGE2).DWG Plotted on 30-Apr-2025 2:06 PM



SHORE RD NB LANE SHIFT
TAPER CALCULATIONS
W = 11'
S = 20 MPH
$L=\frac{WS^2}{60}$ = 73.3'
L/2 = 33.66' MIN

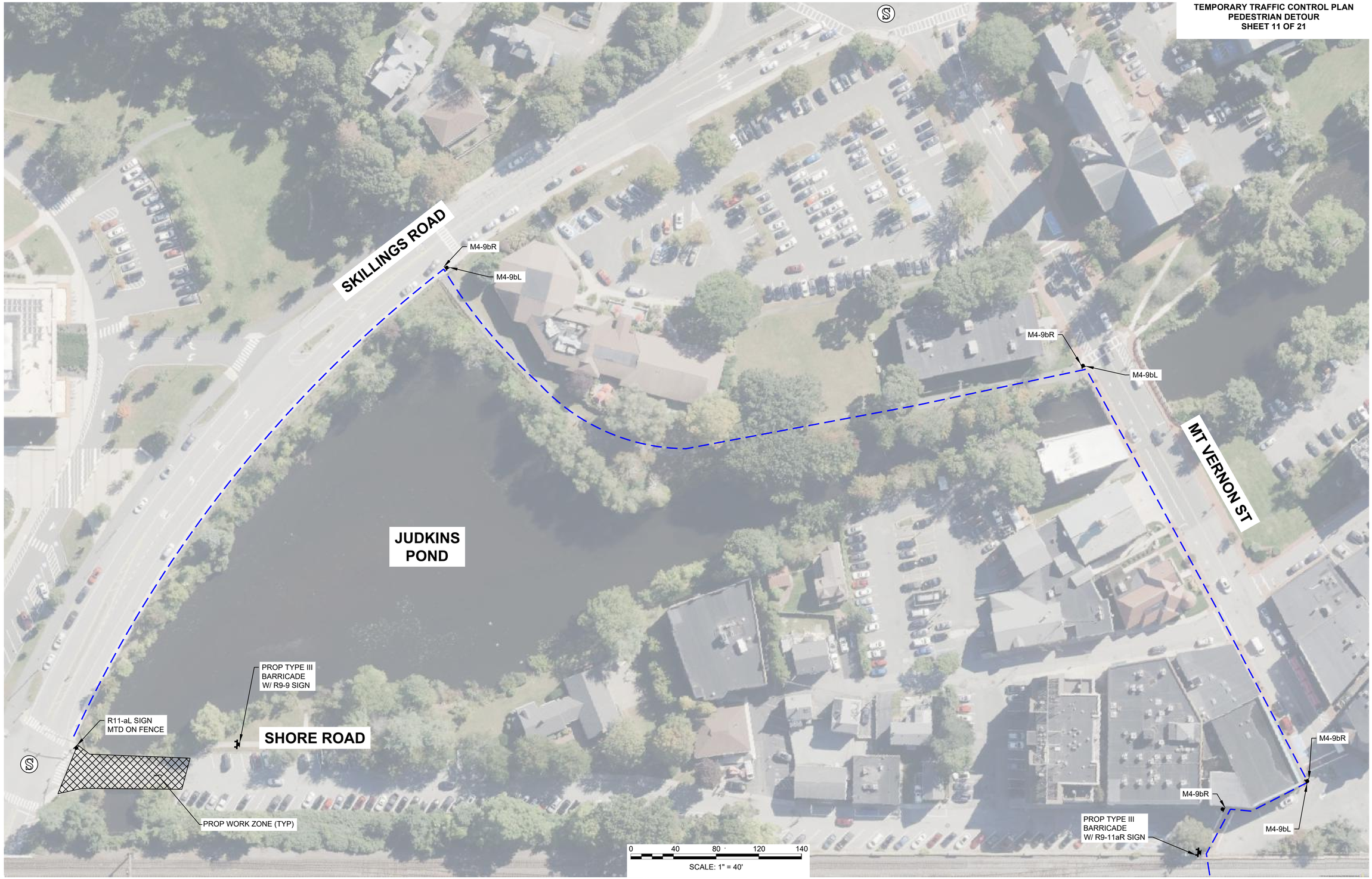
NOTES:

1. MAINTAIN EXISTING SIGNAL AT ALL TIMES.
2. PROPOSED WORK ZONE ENCLOSURE SHALL BE TEMPORARY CONCRETE BARRIER UNLESS APPROVED BY THE TOWN. USE OF THIS BARRIER IS TO PROVIDE PHYSICAL SEPARATION BETWEEN TRAFFIC AND WORK AREA AND DOES NOT GUARANTEE FULL PROTECTION OF ANY KIND BEHIND THE SAID BARRIER. BARRIER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. ALL BLUNT ENDS OF THE BARRIER SHALL BE PROTECTED BY AN APPROVED IMPACT ATTENUATOR AT ALL TIMES.
3. CONTRACTOR SHALL INSTALL G20-2 SIGN ALONG SKILLING WESTBOUND AT 100' SPACING.

0 10 20 30 40

SCALE: 1" = 10'

WINCHESTER
SHORE ROAD
TEMPORARY TRAFFIC CONTROL PLAN
PEDESTRIAN DETOUR
SHEET 11 OF 21



16421.00_HDI(TTCP_DETOUR).DWG Plotted on 30-Apr-2025 2:06 PM

WINCHESTER
SHORE ROAD
TEMPORARY TRAFFIC CONTROL PLAN
SIGN SUMMARY
SHEET 12 OF 21

16421.00_HD\TTCP_GEN\.DWG Plotted on 30-Apr-2025 2:06 PM

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR			UNIT AREA (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER	
R4-7b	24"	30"	KEEP RIGHT	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			WHITE	BLACK	BLACK	5.00
R7-1L	12"	18"	NO PARKING ANY TIME				WHITE	RED	RED	1.50
R7-1R	12"	18"	NO PARKING ANY TIME				WHITE	RED	RED	1.50
R9-9	24"	12"	SIDEWALK CLOSED				WHITE	BLACK	BLACK	2.00
R9-11L	24"	18"	SIDEWALK CLOSED AHEAD CROSS HERE				WHITE	BLACK	BLACK	3.00
R9-11R	24"	18"	SIDEWALK CLOSED AHEAD CROSS HERE				WHITE	BLACK	BLACK	3.00
R9-11aL	24"	12"	SIDEWALK CLOSED CROSS HERE				WHITE	BLACK	BLACK	2.00
R9-11aR	24"	12"	SIDEWALK CLOSED CROSS HERE				WHITE	BLACK	BLACK	2.00
W1-4L	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W1-4R	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W5-1	36"	36"	ROAD NARROWS				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-1	36"	36"	BUMP				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-3	36"	36"	PAVEMENT ENDS				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-8	36"	36"	ROUGH ROAD				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY (CONTINUED)

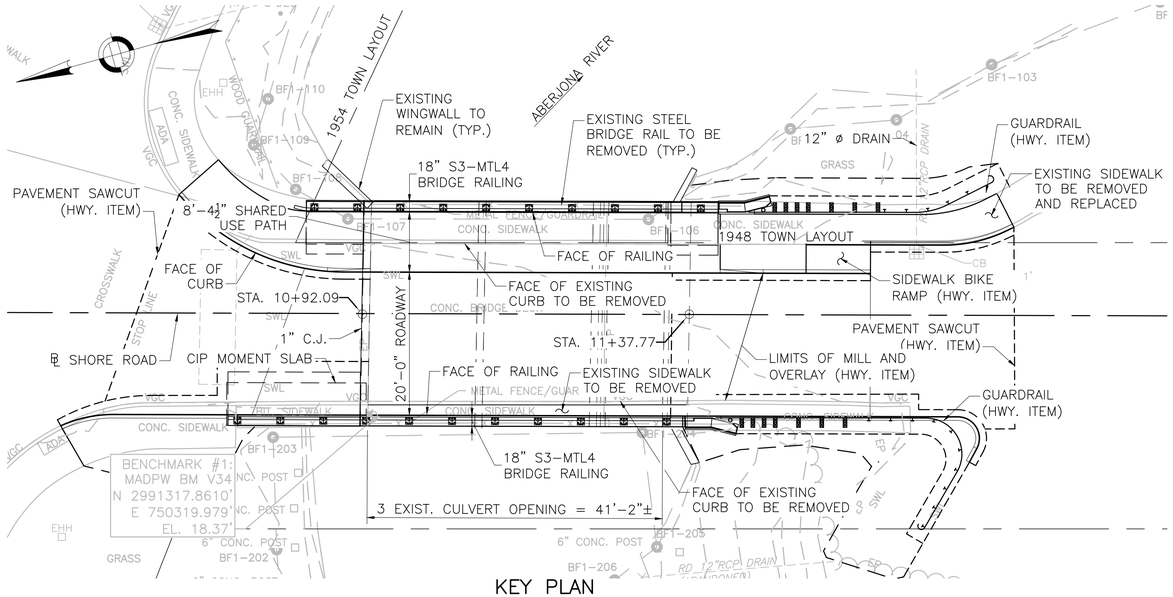
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR			UNIT AREA (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER	
W8-9	36"	36"	LOW SHOULDER	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-15	36"	36"	GROOVED PAVEMENT				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-24	36"	36"	STEEL PLATE AHEAD				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W20-1c	36"	36"	ROAD WORK AHEAD				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W21-7	36"	36"	UTILITY WORK AHEAD				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
M4-9bL	30"	24"	DETOUR				FLUOR-ESCENT ORANGE	BLACK	BLACK	5.00
M4-9bR	30"	24"	DETOUR				FLUOR-ESCENT ORANGE	BLACK	BLACK	5.00
G20-2	36"	18"	END ROAD WORK				ESCENT ORANGE	BLACK	BLACK	

NOTES:
1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED; THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR MOUNTING REQUIREMENTS; AND THE 2017 MassDOT STANDARD SIGNS BOOK, AS AMENDED.
2. ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.

WINCHESTER
SHORE ROAD

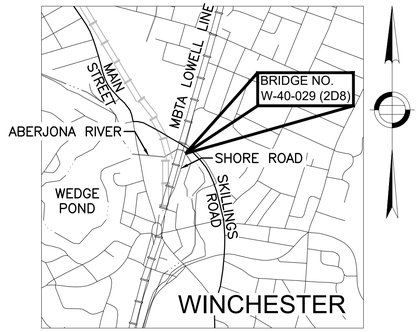
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	21
PROJECT FILE NO.		-	

KEY PLAN, PROFILE & INDEX



KEY PLAN

SCALE: 1" = 10'



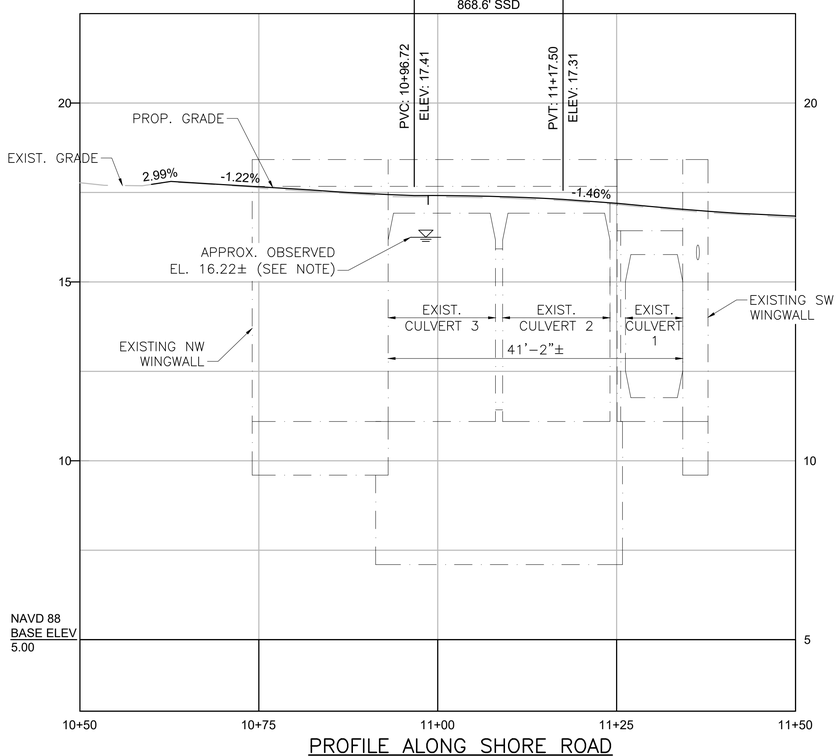
LOCUS

SCALE: 1" = 1000'

INDEX OF SHEETS

1 KEY PLAN, PROFILE & INDEX
2 GENERAL NOTES
3 GENERAL PLAN
4 DECK DETAILS
5 SUBSTRUCTURE REPAIR DETAILS
6 MISCELLANEOUS DETAILS
7 PRECAST HIGHWAY GUARDRAIL TRANSITION (1 OF 2)
8 PRECAST HIGHWAY GUARDRAIL TRANSITION (2 OF 2)
9 S3-MTL4 BRIDGE RAILING

HIGH POINT STA = 10+98.66
PVI STA = 11+07.11
PVI ELEV = 17.43
A.D. = -1.26%
K = 16.53
21' VC
868.6' SSD



PROFILE ALONG SHORE ROAD

HORIZ. SCALE: 1" = 10'
VERT. SCALE: 1" = 2'

BRIDGE QUANTITIES (NOT GUARANTEED)

NO.	ITEM	QTY	UNIT
102.01	SELECTIVE CLEARING AND GRUBBING	1	LS
114.1	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. W-40-029 (2D8)	1	LS
127.21	SCARIFYING REINFORCED CONCRETE SURFACE	1	CY
127.41	REINFORCED CONCRETE DECK EXCAVATION (PARTIAL DEPTH)	2	CY
151.	GRAVEL BORROW	11	CY
450.41	SUPERPAVE BASE COURSE – 15.0 (SBC-25.0)	5	TON
450.231	SUPERPAVE SURFACE COURSE – 12.5 POLYMER (SSC-12.5-P)	48	TON
909.2	CEMENTITIOUS MORTAR FOR PATCHING	675	SF
991.1	CONTROL OF WATER – STRUCTURE NO. W-40-029 (2D8)	1	LS
992.1	ALTERATION TO BRIDGE STRUCTURE NO. W-40-029 (2D8)	1	LS

APRIL 30, 2025	ISSUED FOR BID

PROPOSED SAFETY IMPROVEMENTS
WINCHESTER
SHORE ROAD
OVER ABERJONA RIVER

vhb
260 Arsenal PL #2
PO Box 9151
Watertown, MA 02471
617.924.1770

16421.00_BR(FIRST_SHEET).DWG Plotted on 30-Apr-2025 2:07 PM

GENERAL NOTES

DESIGN:

IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS 9TH EDITION, 2020, FOR HL–93 LOADING.

IN ACCORDANCE WITH THE 2009 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES FOR 90 PSF PEDESTRIAN LOADING.

MASSDOT BENCH MARK:

BENCHMARK #1: MADPW BM V34 AT NORTHWEST CORNER
N 2991317.8610', E 750319.979', EL. 18.37'

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD88) OF 1988.

SURVEY:

TOPOGRAPHICAL INFORMATION FROM A SURVEY BY VANASSE HANGEN BRUSTLIN, INC., WATERTOWN, MASSACHUSETTS IN JULY 2024.

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF–SIZE PRINTS (A3).

STRUCTURAL ELEMENTS:

STRUCTURAL ELEMENTS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER.

ANCHOR BOLTS:

ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

CONCRETE:

UNLESS OTHERWISE SPECIFIED, ALL CONCRETE SHALL BE 5000 HP CONCRETE.

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	17"	21"
2. 12" OF CONCRETE BELOW BAR	18"	22"	27"
3. EPOXY COATED BARS, COVER $<3d_b$, OR CLEAR SPACING $< 6d_b$	21"	26"	31"
4. COATED BARS, ALL OTHER CASES	17"	21"	25"
5. CONDITION 2. AND 3.	23"	29"	35"
6. CONDITION 2. AND 4.	21"	27"	32"

ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

GEOTECHNICAL REPORT:

EXISTING SOIL INFORMATION IS UNAVAILABLE.

CONSTRUCTION REQUIREMENTS AND PROCEDURES:

THE CONTRACTOR SHALL TAKE THE PROPER PRECAUTIONS TO ENSURE THE STABILITY AND SAFE PERFORMANCE OF ALL STRUCTURAL ELEMENTS DURING DEMOLITION AND CONSTRUCTION. REFER TO APPROVED DEMOLITION/ERECTION PLANS.

EXISTING CONDITIONS:

EXISTING CONDITIONS ARE DERIVED FROM LIMITED INFORMATION AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH THE GEOMETRY OF THE EXISTING STRUCTURE AT ALL RELEVANT LOCATIONS BY FIELD MEASUREMENTS AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF. THE CONTRACTOR SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY CONSTRUCTION UNTIL THE REQUIRED MEASUREMENTS HAVE BEEN MADE AND ANY APPARENT CONFLICTS WITH THE PROPOSED CONSTRUCTION HAVE BEEN BROUGHT TO THE ATTENTION OF THE ENGINEER.

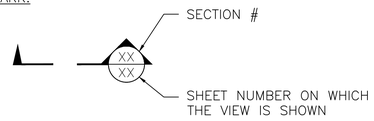
UTILITIES:

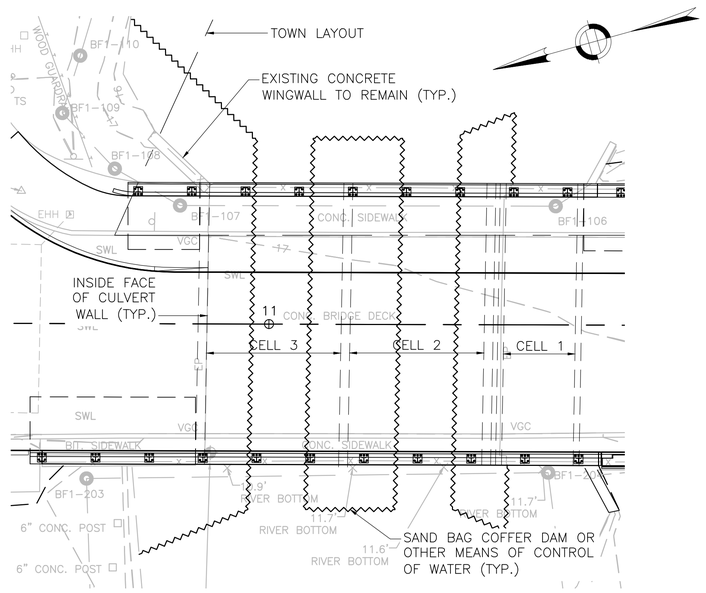
THE EXISTING UTILITIES HAVE BEEN DISPLAYED FROM THE BEST AVAILABLE INFORMATION. THE EXACT LOCATIONS AND DEPTHS ARE UNKNOWN AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION FROM DAMAGE FOR ALL THE EXISTING UTILITIES.

CONSTRUCTION JOINTS:

CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS, WILL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.

SECTION MARK:





CONTROL OF WATER PLAN

SCALE: $\frac{1}{8}$" = 1'–0"

CONTROL OF WATER NOTES:

1. THE CONTROL OF WATER SHOWN IS CONCEPTUAL. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A WATER CONTROL PLAN TO THE ENGINEER FOR APPROVAL. THE WATER CONTROL PLAN SHALL DEFINE AND DETAIL THE METHODS FOR CONTROL OF WATER AND TYPE OF INSTALLATION TO BE USED.
2. CONTROL OF WATER PLAN SHALL INCLUDE MEANS AND METHODS FOR STAGING ONE COFFER DAM AT A TIME.
3. CONTRACTOR SHALL PERFORM ALL PROPOSED WORK IN COMPLIANCE WITH THE ORDER OF CONDITIONS ISSUED BY THE WINCHESTER CONSERVATION COMMISSION.
4. CONSTRUCTION SHALL BE COMPLETED DURING THE DRY SEASON. SEE SPECIFICATIONS FOR CONTROL OF WATER REQUIREMENTS.

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	21
PROJECT FILE NO.		-	

GENERAL NOTES

DATE	DESCRIPTION
APRIL 30, 2025	ISSUED FOR BID
USE ONLY PRINTS OF LATEST DATE	

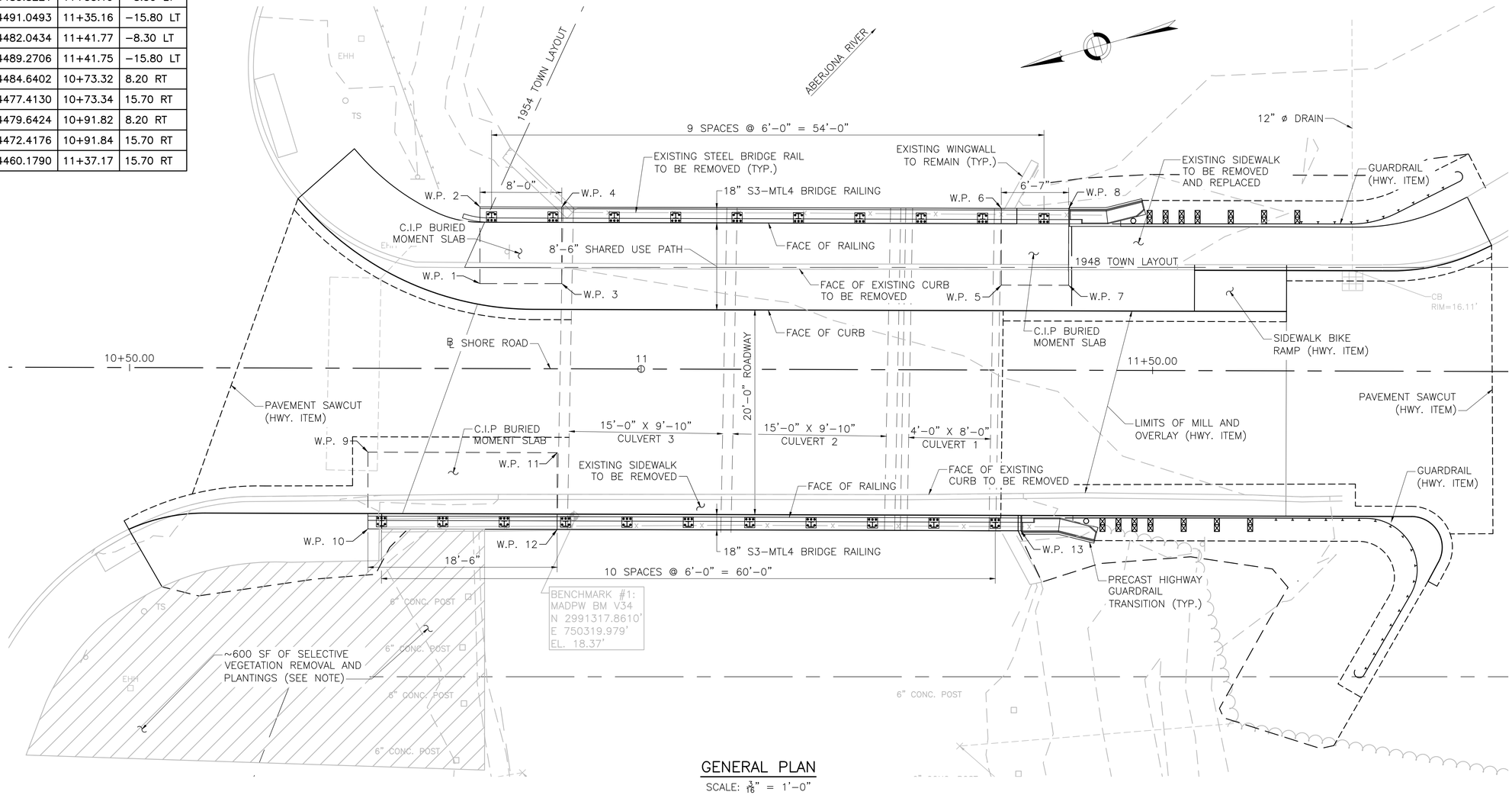
16421.00_BR(NOTES).DWG Plotted on 30-Apr-2025 2:29 PM

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	21
PROJECT FILE NO.		-	

GENERAL PLAN

POINT TABLE				
POINT NO.	NORTHING	EASTING	STATION	OFFSET
W.P. 1	2991320.6483	754497.5833	10+84.22	−8.30 LT
W.P. 2	2991318.6439	754504.8107	10+84.20	−15.80 LT
W.P. 3	2991312.9393	754495.4453	10+92.22	−8.32 LT
W.P. 4	2991310.9398	754502.6502	10+92.20	−15.80 LT
W.P. 5	2991271.5760	754483.8221	11+35.19	−8.30 LT
W.P. 6	2991269.5716	754491.0493	11+35.16	−15.80 LT
W.P. 7	2991265.2335	754482.0434	11+41.77	−8.30 LT
W.P. 8	2991263.2291	754489.2706	11+41.75	−15.80 LT
W.P. 9	2991335.5983	754484.6402	10+73.32	8.20 RT
W.P. 10	2991337.6027	754477.4130	10+73.34	15.70 RT
W.P. 11	2991317.7868	754479.6424	10+91.82	8.20 RT
W.P. 12	2991319.7905	754472.4176	10+91.84	15.70 RT
W.P. 13	2991276.1509	754460.1790	11+37.17	15.70 RT



GENERAL PLAN

SCALE: $\frac{3}{16}$" = 1'−0"

NOTES:

1. SELECTIVE VEGETATION REMOVAL AND PLANTINGS TO BE IN ACCORDANCE WITH THE ORDER OF CONDITIONS ISSUED BY THE WINCHESTER CONSERVATION COMMISSION.
2. INVASIVE VINES SHALL BE REMOVED BY HAND IN THE AREA LOCATED NORTHWEST OF THE PROPOSED WORK.
3. NO LESS THAN 10 NATIVE SPECIES OF SHRUBS SHALL BE PLANTED IN THE AREA LOCATED NORTHWEST OF THE PROPOSED WORK. SHRUBS SHALL INCLUDE (3) SWEET PEPPERBUSH (CLETHRA ALNIFOLIA), (3) GREY DOGWOOD (CORNUS RACEMOSA), AND (4) BLACK CHOKEBERRY (PHOTINIA MELANOCARPA).

APRIL 30, 2025	ISSUED FOR BID
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

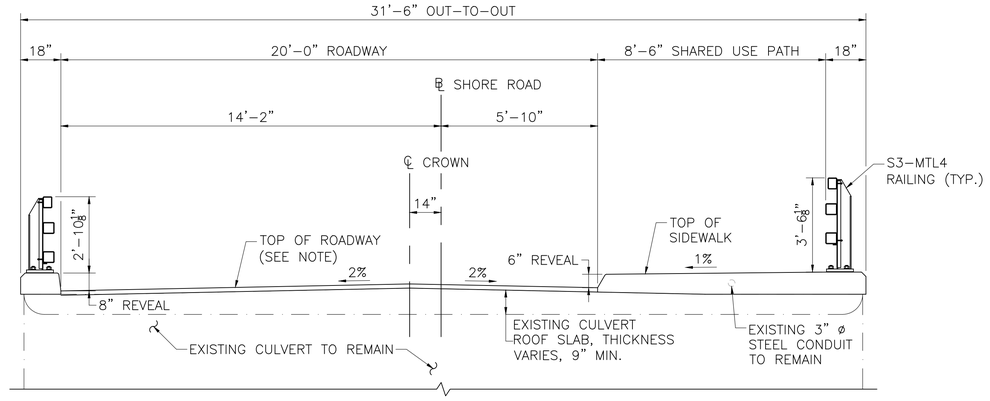
16421.00_BR(GEN PLAN).DWG Plotted on 30-Apr-2025 2:07 PM

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	21
PROJECT FILE NO.		-	

DECK DETAILS

16421.00_BR(DETAILS).DWG Plotted on 30-Apr-2025 2:07 PM



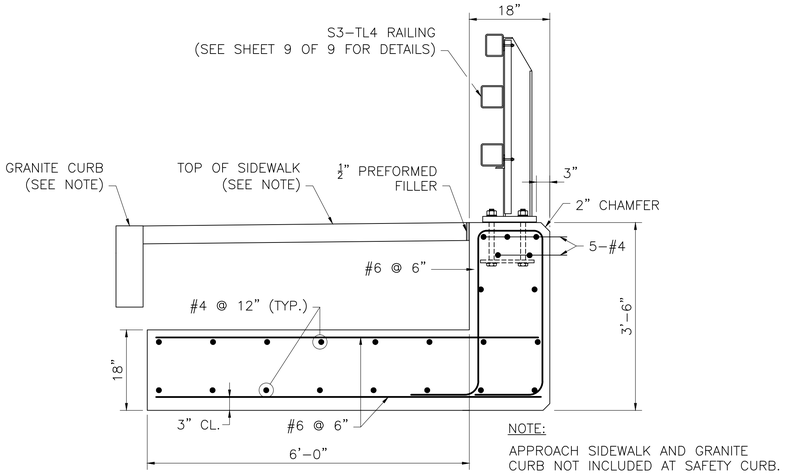
TYPICAL SECTION

SCALE: ⅜" = 1'–0"

NOTE:

AT CELL 1, APPLY 2" SUPERPAVE SURFACE COURSE OVER 4" SUPERPAVE BASE COURSE OVER 2" GRAVEL BORROW OVER MEMBRANE WATERPROOFING.

AT CELLS 2 & 3, APPLY 2" SURFACE COURSE OVER MEMBRANE WATERPROOFING.

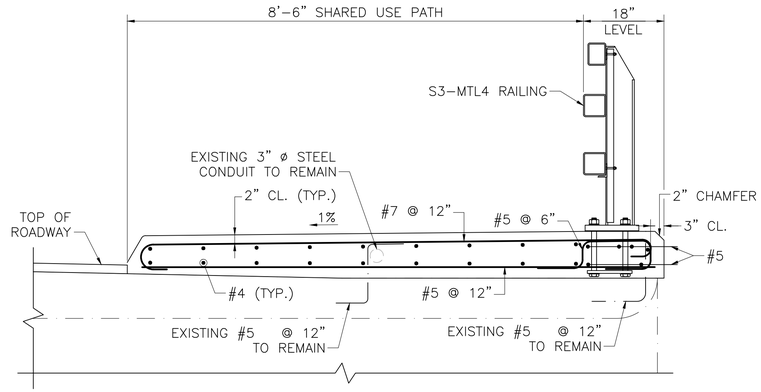


NOTE:

APPROACH SIDEWALK AND GRANITE CURB NOT INCLUDED AT SAFETY CURB.

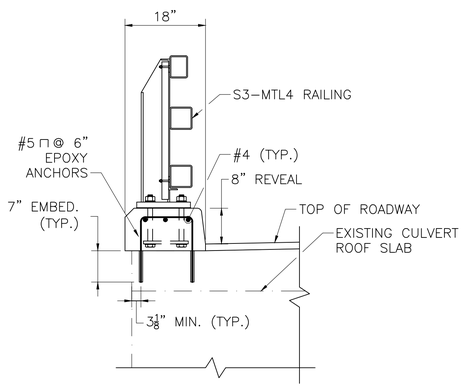
MOMENT SLAB TYPICAL SECTION

SCALE: ¾" = 1'–0"



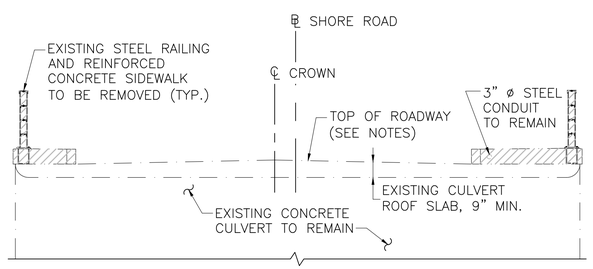
SIDEWALK SECTION

SCALE: ¾" = 1'–0"



SIDEWALK SECTION

SCALE: ¾" = 1'–0"


℄ SHORE ROAD
EXISTING STEEL RAILING AND REINFORCED CONCRETE SIDEWALK TO BE REMOVED (TYP.)
℄ CROWN
TOP OF ROADWAY (SEE NOTES)
3" ø STEEL CONDUIT TO REMAIN
EXISTING CULVERT ROOF SLAB, 9" MIN.
EXISTING CONCRETE CULVERT TO REMAIN

LIMITS OF DEMOLITION

SCALE: ¼" = 1'–0"

NOTES:

1. CONTRACTOR TO REMOVE ALL DETERIORATED CONCRETE AND ASPHALT PATCHING FROM THE DECK SURFACE AND DECK EDGES DIRECTED BY THE ENGINEER.
2. AREAS OF REMOVAL SHALL BE PATCHED WITH 5000 PSI CONCRETE. SUPPLEMENTAL EPOXY COATED REINFORCEMENT SHALL BE INSTALLED IF NECESSARY.

LEGEND

▨ LIMITS OF DEMOLITION

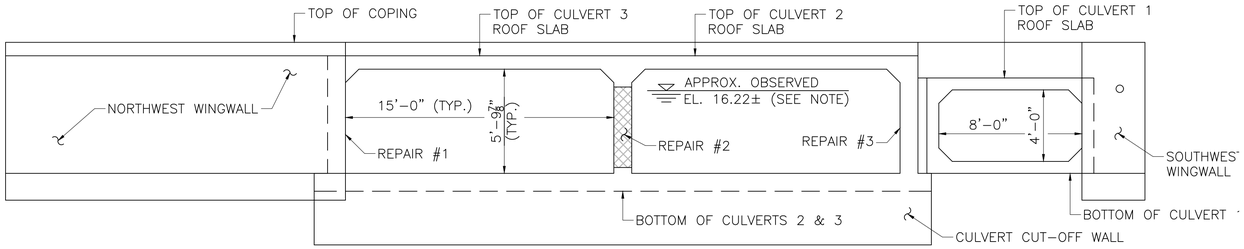
APRIL 30, 2025	ISSUED FOR BID
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	21
PROJECT FILE NO.		-	

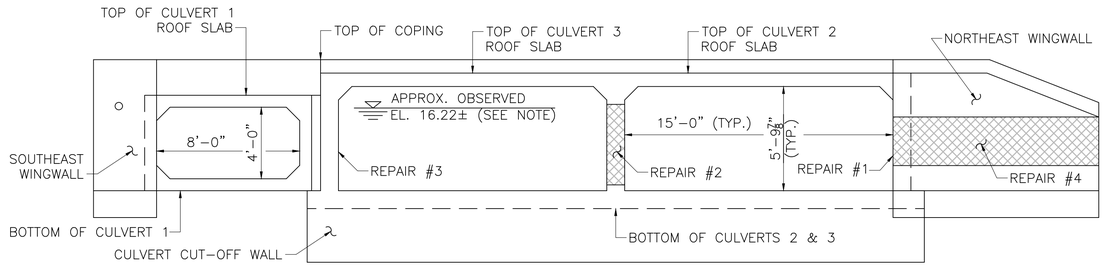
SUBSTRUCTURE REPAIR DETAILS

164210_BR(DETAILS).DWG Plotted on 30-Apr-2025 2:07 PM



ELEVATION (LOOKING EAST)

SCALE: ¼" = 1'-0"



ELEVATION (LOOKING WEST)

SCALE: ¼" = 1'-0"

NOTE:

OBSERVED WATER ELEVATION IS APPROXIMATE. INFORMATION WAS OBTAINED BY THE MASSDOT ROUTINE UNDERWATER INSPECTION REPORT DATED JANUARY 21, 2022.

REPAIR SCHEDULE

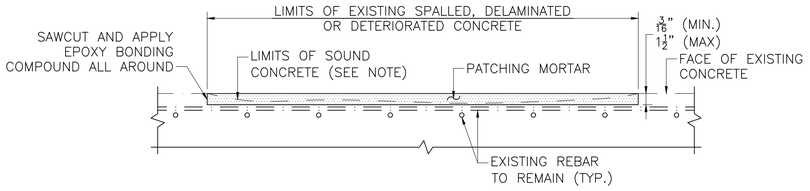
REPAIR #	APPROX. VOLUME	DESCRIPTION
1	1 CY	SCARIFY AND PATCH ALONG ENTIRE LENGTH OF CULVERT 3 SIDEWALL (INSIDE FACE)
2	2 CY	SCARIFY AND PATCH UPSTREAM NOSE, ENTIRE LENGTH OF CULVERTS 2 & 3 SIDEWALLS AND DOWNSTREAM NOSE
3	1 CY	SCARIFY AND PATCH ALONG ENTIRE LENGTH OF CULVERT 2 SIDEWALL (INSIDE FACE)
4	1 CY	SCARIFY AND PATCH ALONG ENTIRE LENGTH OF WINGWALL

CONCRETE REPAIR NOTES:

1. EXISTING REINFORCING THAT HAS LOST 25% OR MORE OF ITS ORIGINAL DIAMETER SHALL BE SUPPLEMENTED BY NEW EPOXY COATED BARS PLACED PARALLEL TO EXISTING REINFORCING.
2. DETAILS ARE RELEVANT FOR ALL REPAIR LOCATIONS.
3. DETERIORATED CONCRETE SHALL BE REMOVED TO A SOUND SUBSTRATE OR A MINIMUM OF 1" BEHIND REINFORCING STEEL.
4. ALL REINFORCING STEEL EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED OF ALL LOOSE RUST BY SANDBLASTING, WIRE BRUSHING, OR BY MACHINE WIRE BRUSHING.
5. THE SURFACES TO RECEIVE THE REPAIR MATERIAL SHALL BE FREE OF OIL, SOLVENT, GREASE, DIRT, LOOSE PARTICLES AND FOREIGN MATTER. CLEANING OF THE REPAIR AREAS SHALL BE PERFORMED BY ABRASIVE BLASTING (NOT MORE THAN 36 HOURS AHEAD OF THE REPAIR PLACEMENT) OR OTHER METHODS APPROVED BY THE ENGINEER.
6. ALL EXISTING REINFORCING STEEL AND CONCRETE SURFACES SHALL BE COATED WITH EPOXY BONDING AGENT AND CORROSION INHIBITOR AFTER CLEANING.
7. CONCRETE REPAIR MATERIAL SHALL BE PLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
8. PARTIAL DEPTH AND DECK REPAIRS MATERIAL SHALL BE 5000 PSI, ⅜ INCH, 710 HP CEMENT CONCRETE.

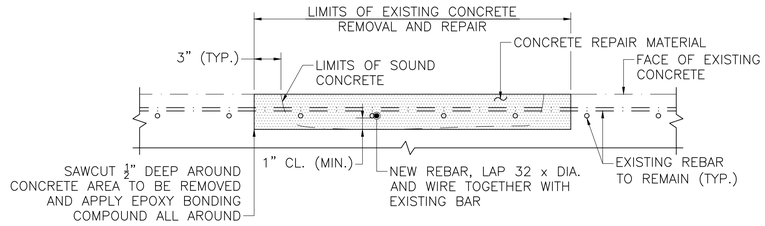
SUGGESTED CONCRETE REPAIR SEQUENCE:

1. PRIOR TO REMOVING DETERIORATED CONCRETE, THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL WORK AREAS. USING THE CONTRACT DRAWINGS AS A GUIDE, THE ENGINEER AND CONTRACTOR SHALL HAMMER SOUND ALL WORK AREAS AND MARK THE LIMITS OF CONCRETE TO BE REMOVED.
2. THE LIMITS OF CONCRETE REMOVAL AS MARKED ON THE STRUCTURE SHALL BE USED AS A GUIDE FOR SAWCUTTING TO A ½" DEPTH.
3. EQUIPMENT USED FOR REMOVAL OF UNSOUND CONCRETE SHALL BE CHIPPING HAMMERS WEIGHING A MAXIMUM OF 15 POUNDS. ONLY CHISEL POINT BITS WILL BE ALLOWED.
4. THE CONCRETE SHALL BE FINISHED TO CONFORM TO THE LINE, GRADE, SURFACE TEXTURE, AND APPEARANCE OF THE ORIGINAL CONCRETE SURFACE.


LIMITS OF EXISTING SPALLED, DELAMINATED OR DETERIORATED CONCRETE
SAWCUT AND APPLY EPOXY BONDING COMPOUND ALL AROUND
LIMITS OF SOUND CONCRETE (SEE NOTE)
PATCHING MORTAR
⅜" (MIN.)
1½" (MAX)
FACE OF EXISTING CONCRETE
EXISTING REBAR TO REMAIN (TYP.)

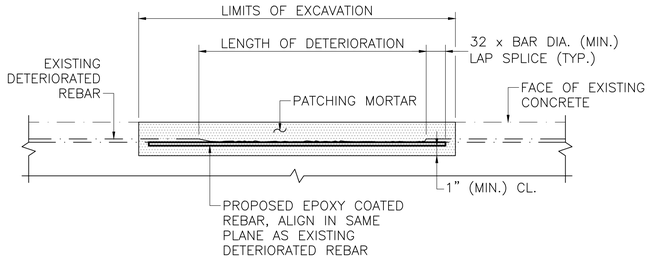
SHALLOW DEPTH REPAIR DETAIL

SCALE: 1½" = 1'-0"


LIMITS OF EXISTING CONCRETE REMOVAL AND REPAIR
3" (TYP.)
LIMITS OF SOUND CONCRETE
CONCRETE REPAIR MATERIAL
FACE OF EXISTING CONCRETE
SAWCUT ½" DEEP AROUND CONCRETE AREA TO BE REMOVED AND APPLY EPOXY BONDING COMPOUND ALL AROUND
1" CL. (MIN.)
NEW REBAR, LAP 32 x DIA. AND WIRE TOGETHER WITH EXISTING BAR
EXISTING REBAR TO REMAIN (TYP.)

PARTIAL DEPTH REPAIR DETAIL

SCALE: 1½" = 1'-0"


LIMITS OF EXCAVATION
LENGTH OF DETERIORATION
32 x BAR DIA. (MIN.) LAP SPLICE (TYP.)
EXISTING DETERIORATED REBAR
PATCHING MORTAR
FACE OF EXISTING CONCRETE
1" (MIN.) CL.
PROPOSED EPOXY COATED REBAR, ALIGN IN SAME PLANE AS EXISTING DETERIORATED REBAR

REBAR REPAIR DETAIL

SCALE: 1½" = 1'-0"

CONCRETE REPAIR TYPES

CONDITION			REPAIR TYPE	
DEPTH (IN)	AREA (SF)	EXPOSED REBAR	EXCAVATE BEYOND REBAR	TYPE OF REPAIR
≤ 1½	≤ 7	NO	NO	SHALLOW
≤ 1½	> 7	NO	YES	PARTIAL
≤ 1½	–	YES	YES	PARTIAL
> 1½	–	–	YES	PARTIAL

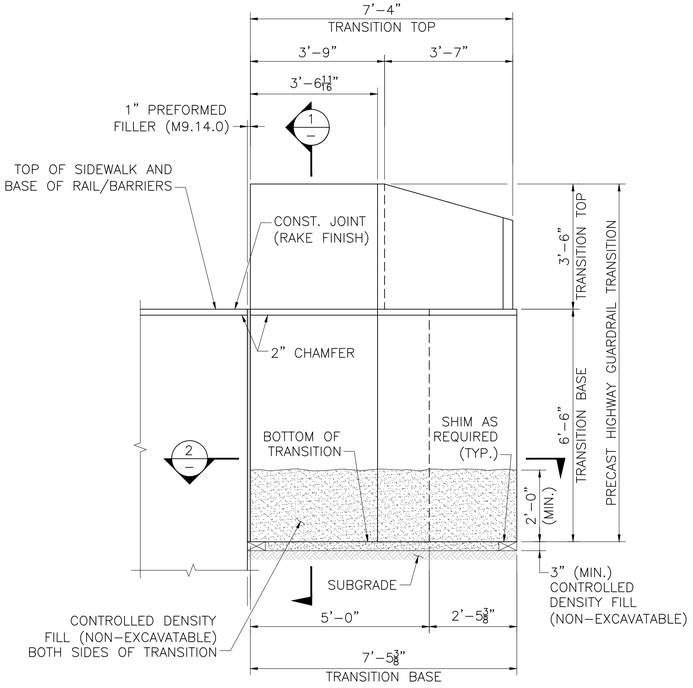
DATE	DESCRIPTION
APRIL 30, 2025	ISSUED FOR BID
USE ONLY PRINTS OF LATEST DATE	

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	21
PROJECT FILE NO.		-	

MISCELLANEOUS DETAILS

16421.00_BR(DETAILS).DWG Plotted on 30-Apr-2025 2:07 PM

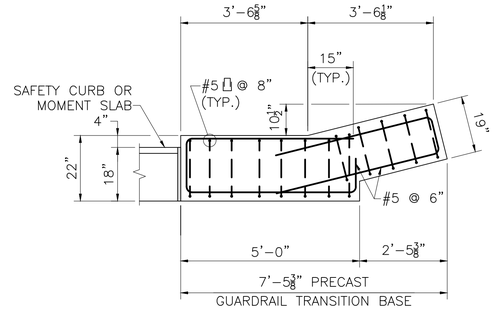


PRECAST GUARDRAIL TRANSITION ELEVATION

SCALE: 1/2" = 1'-0"

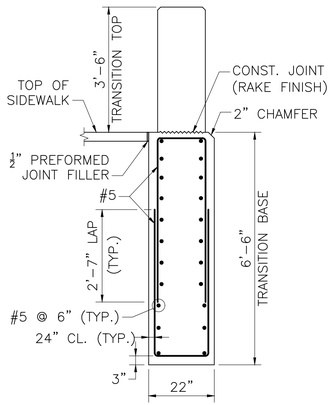
NOTES:

1. THE SOIL SHALL BE EXCAVATED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" (MIN.) ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION.
2. CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL GUARDRAIL TRANSITION WITH CONTROLLED DENSITY FILL (NON-EXCAVATABLE) TO THE ELEVATION SHOWN.
3. BACKFILL THE REMAINDER OF EXCAVATION WITH GRAVEL BORROW, WHICH SHALL BE THOROUGHLY COMPACTED IN 12" LIFTS.
4. AFTER CONTROLLED DENSITY FILL (NON-EXCAVATABLE) HAS SET FILL THE GAPS BETWEEN GUARDRAIL TRANSITION AND BLOCK-OUT IN BACKWALL AND ABUTMENT WITH NON-SHRINK GROUT UP TO THE TOP OF BACKWALL.
5. THE REST OF REINFORCEMENT IS NOT SHOWN FOR CLARITY.



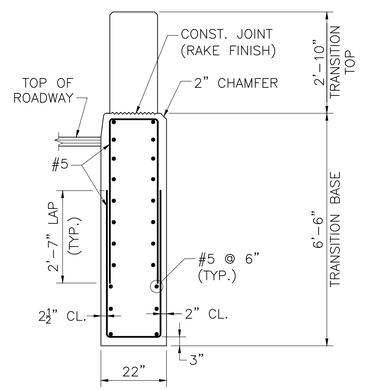
NOTE:
SAFETY CURB/MOMENT SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

SECTION 2 / SCALE: 1/2" = 1'-0"



NOTE:
REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.

SECTION AT SIDEWALK

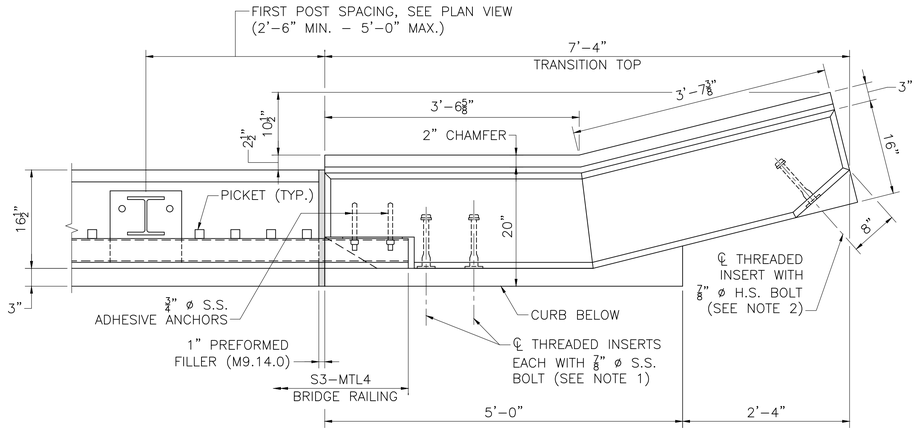


NOTE:
REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.

SECTION AT SAFETY CURB

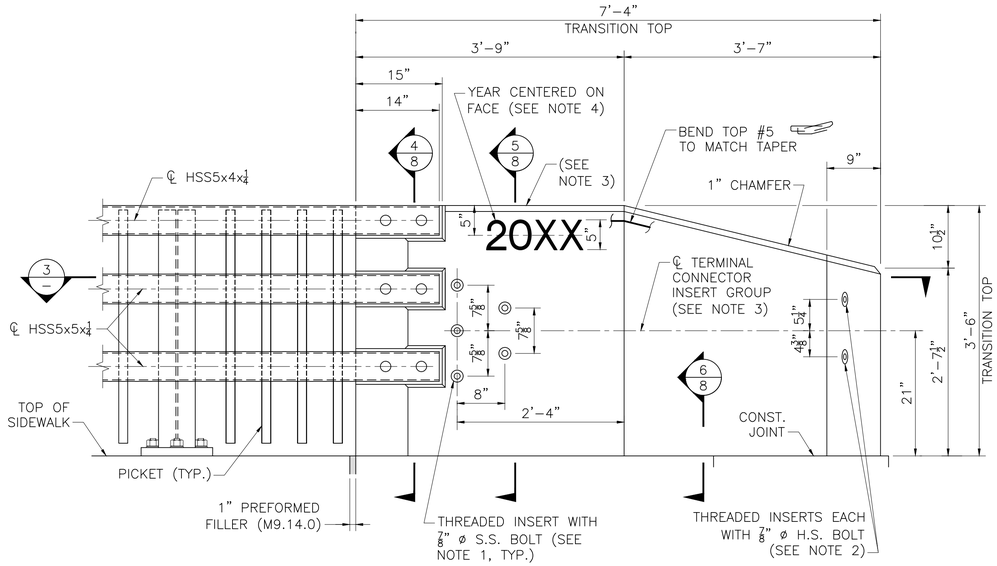
SECTION 1 / SCALE: 1/2" = 1'-0"

APRIL 30, 2025	ISSUED FOR BID
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



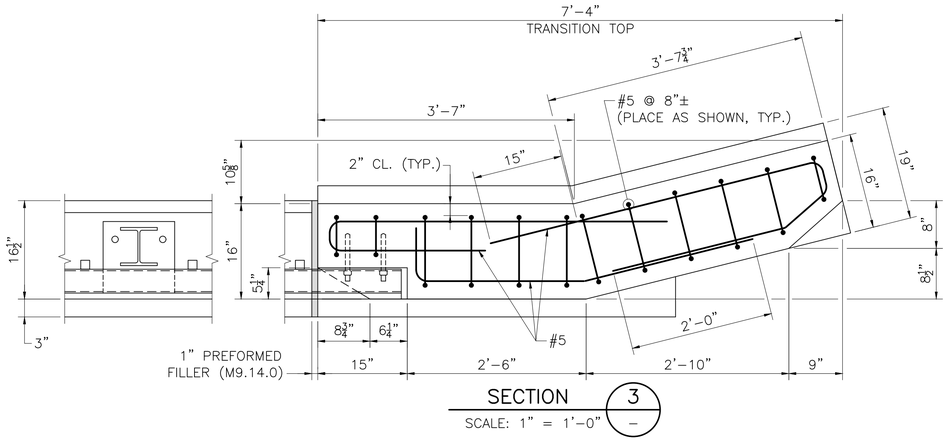
PLAN AT SAFETY CURB

SCALE: 1" = 1'-0"



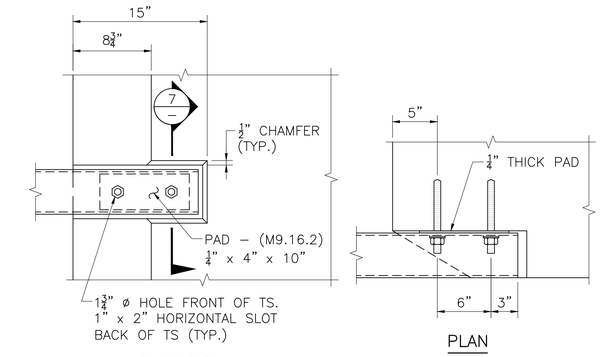
ELEVATION AT SIDEWALK

SCALE: 1" = 1'-0"



SECTION 3

SCALE: 1" = 1'-0"

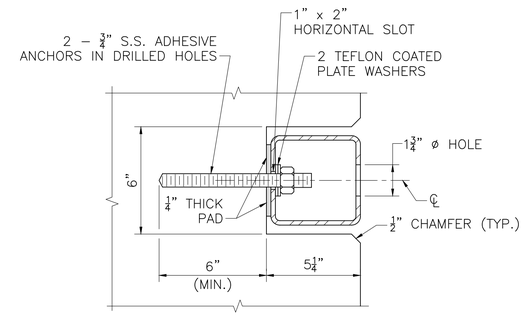


ELEVATION

PLAN

RAIL ATTACHMENT

SCALE: 1½" = 1'-0"



SECTION 7

SCALE: 3" = 1'-0"

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER ⅞" ø S.S. (STAINLESS STEEL) BOLT. S.S. BOLTS SHALL BE ⅞" ø x 1½" LONG FULLY THREADED CONFORMING TO ASTM F593D WITH AISI TYPE 304N S.S. WASHERS. INSERTS FOR ⅞" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.

2. ⅞" ø HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F3125 AND BE GALVANIZED. USE ADDITIONAL WASHERS AS REQUIRED TO PROPERLY ENGAGE THE BOLTS.

3. FOR AN APPROACH GRADE IN EXCESS OF 3%, THE TRANSITION TOP AND THE TOP OF CURB SHALL FOLLOW THE APPROACH GRADE. THE HEIGHT OF THE TRANSITION TOP SHALL VARY PROVIDED THAT THE MINIMUM DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE MET. THE BOTTOM OF THE TRANSITION BASE SHALL BE SET LEVEL WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO FOLLOW THE APPROACH GRADE.

   FOR AN APPROACH GRADE UP TO 3%, THE TRANSITION MAY BE CAST SQUARE AND SET PLUMB WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SQUARE TO THE POST.

4. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.

5. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 HP CEMENT CONCRETE.

6. LIFTING DEVICES (NOT SHOWN), INCLUDING THEIR NUMBER AND LOCATION, SHALL BE DESIGNED AND DETAILED BY THE PRECASTER. THEY SHALL BE GALVANIZED AND SHALL BE PLACED AND RECESSED IN POCKETS TO PROVIDE 1½" CLEAR COVER TO THE FACE OF THE TRANSITION CONCRETE. THESE DEVICES SHALL BE CLEARLY SHOWN ON THE SHOP DRAWINGS ALONG WITH ALL SUPPORTING CALCULATIONS AND/OR CATALOG CUTS. ONCE THE PRECAST TRANSITION IS SET IN PLACE, THE LIFTING DEVICE POCKETS SHALL BE FILLED WITH A NON-SHRINK GROUT THAT MATCHES THE COLOR OF THE TRANSITION CONCRETE WHEN CURED AND THE FILLED POCKETS SHALL BE RUBBED WITH A CORUNDUM STONE TO BLEND OUT THE JOINTS.

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	21
PROJECT FILE NO.		-	

PRECAST HIGHWAY GUARDRAIL TRANSITION (1 OF 2)

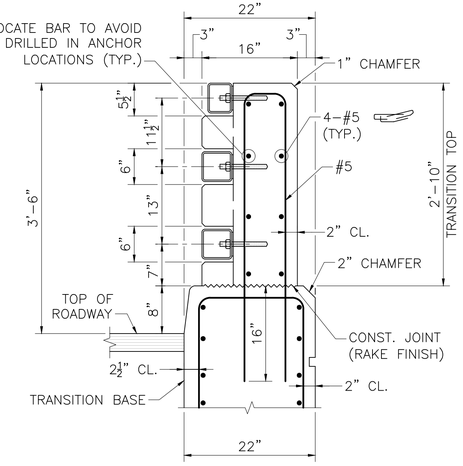
DATE	DESCRIPTION
APRIL 30, 2025	ISSUED FOR BID
USE ONLY PRINTS OF LATEST DATE	

16421.00_BR(HGT 1 OF 2).DWG Plotted on 30-Apr-2025 2:08 PM

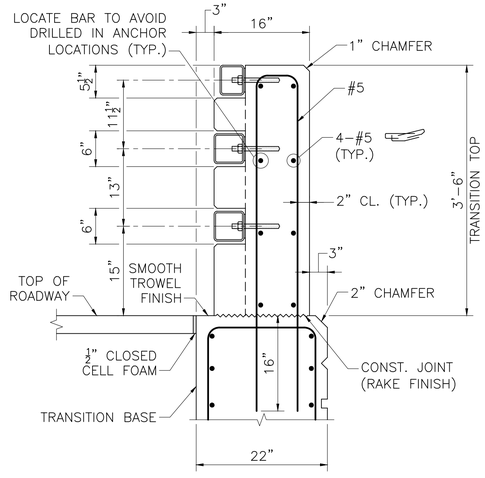
WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	21
PROJECT FILE NO.		-	

PRECAST HIGHWAY GUARDRAIL
TRANSITION (2 OF 2)

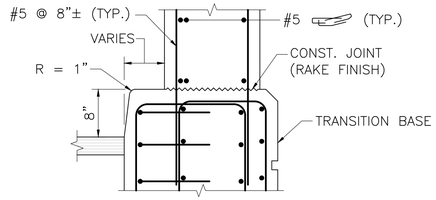


SECTION AT SAFETY CURB

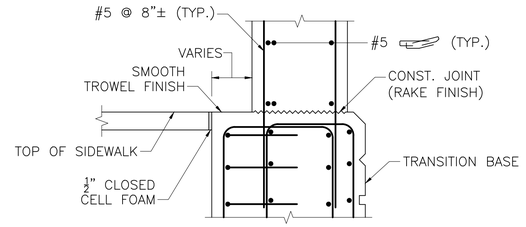


SECTION AT SIDEWALK

SECTION 4
SCALE: 1" = 1'-0"

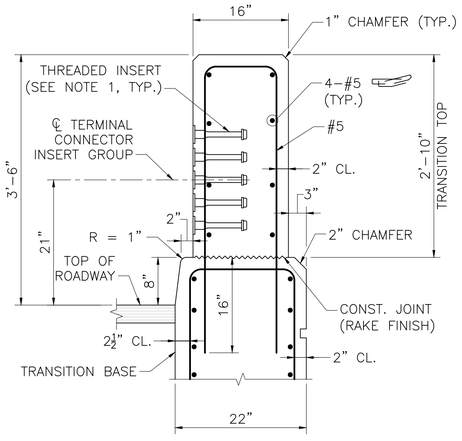


SECTION AT SAFETY CURB

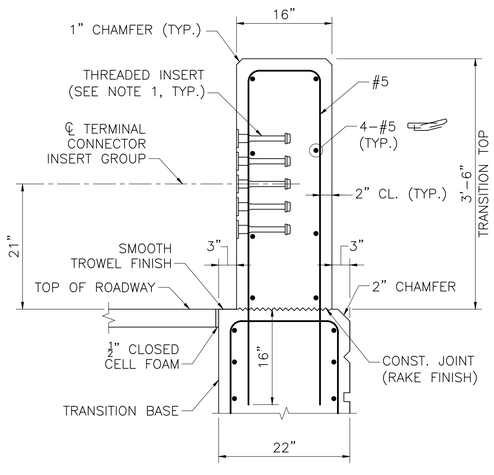


SECTION AT SIDEWALK

SECTION 6
SCALE: 1" = 1'-0"



SECTION AT SAFETY CURB

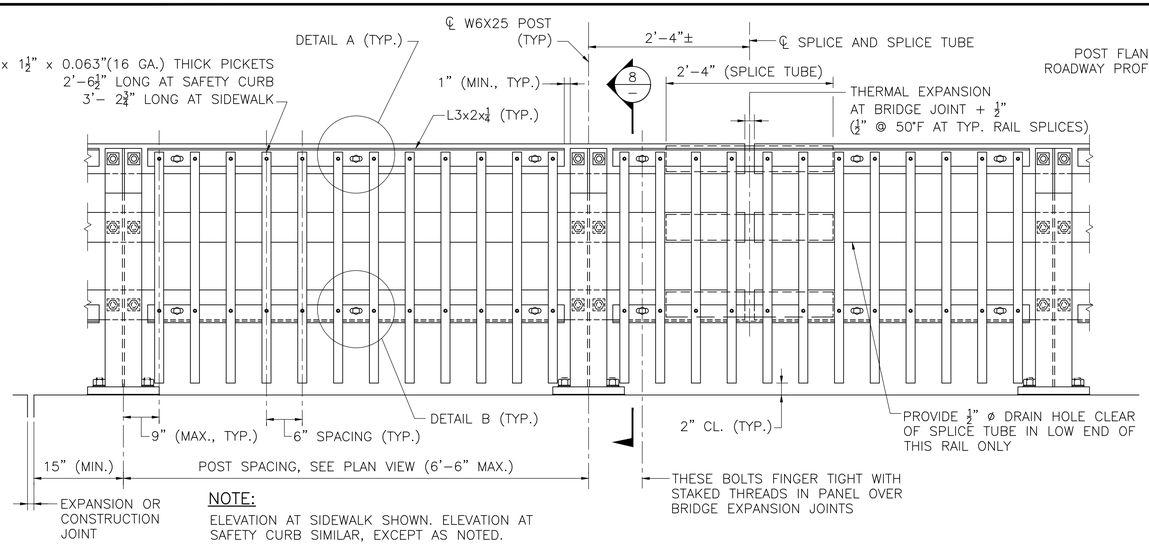


SECTION AT SIDEWALK

SECTION 5
SCALE: 1" = 1'-0"

APRIL 30, 2025	ISSUED FOR BID
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

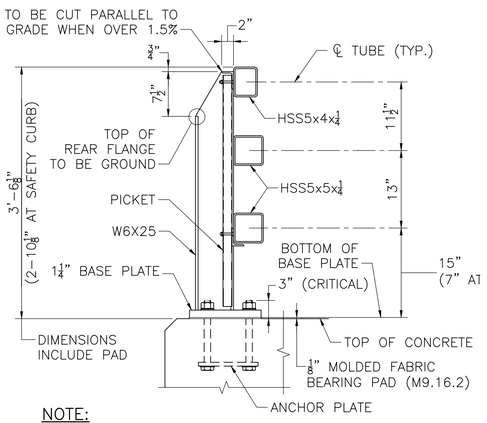
16421.00_BR(HGT 2 OF 2).DWG Plotted on 30-Apr-2025 2:08 PM


℄ W6X25 POST (TYP)
DETAIL A (TYP.)
2'-4"±
℄ SPLICE AND SPLICE TUBE
1½" x 1½" x 0.063"(16 GA.) THICK PICKETS
2'-6½" LONG AT SAFETY CURB
3'- 2¾" LONG AT SIDEWALK
1" (MIN., TYP.)
8
2'-4" (SPLICE TUBE)
L3x2x¼ (TYP.)
THERMAL EXPANSION AT BRIDGE JOINT + ½" (½" @ 50°F AT TYP. RAIL SPLICES)
DETAIL B (TYP.)
9" (MAX., TYP.)
6" SPACING (TYP.)
2" CL. (TYP.)
PROVIDE ½" ø DRAIN HOLE CLEAR OF SPLICE TUBE IN LOW END OF THIS RAIL ONLY
15" (MIN.)
POST SPACING, SEE PLAN VIEW (6'-6" MAX.)
EXPANSION OR CONSTRUCTION JOINT
THESE BOLTS FINGER TIGHT WITH STAKED THREADS IN PANEL OVER BRIDGE EXPANSION JOINTS

NOTE:
ELEVATION AT SIDEWALK SHOWN. ELEVATION AT SAFETY CURB SIMILAR, EXCEPT AS NOTED.

BRIDGE RAILING ELEVATION

SCALE: 1" = 1'-0"



NOTE:
SECTION AT SIDEWALK SHOWN. ELEVATION AT SAFETY CURB SIMILAR, EXCEPT AS NOTED.

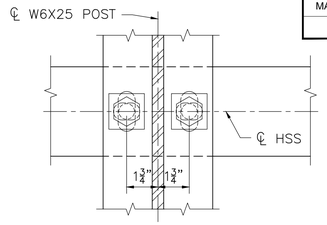
SECTION 8 –

SCALE: 1" = 1'-0"

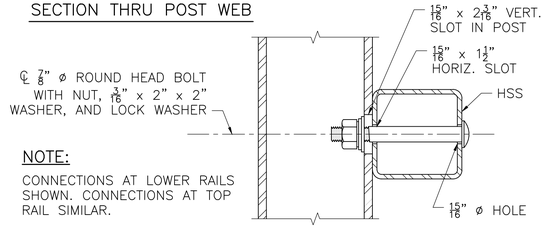
WINCHESTER SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	21
PROJECT FILE NO.		-	

S3-MTL4 BRIDGE RAILING



SECTION THRU POST WEB

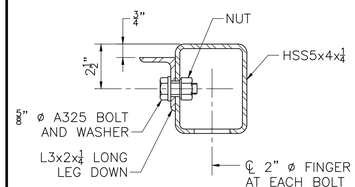


NOTE:
CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

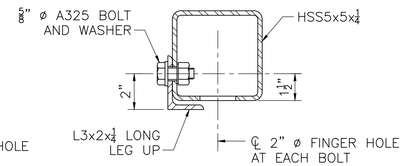
SECTION THRU RAIL

TYPICAL RAIL TO POST CONNECTIONS

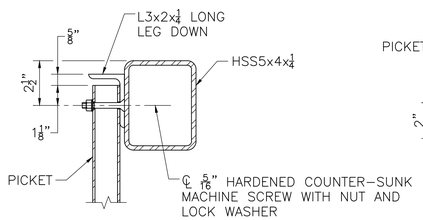
SCALE: 3" = 1'-0"



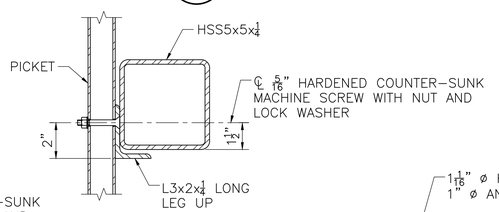
SECTION 9 –



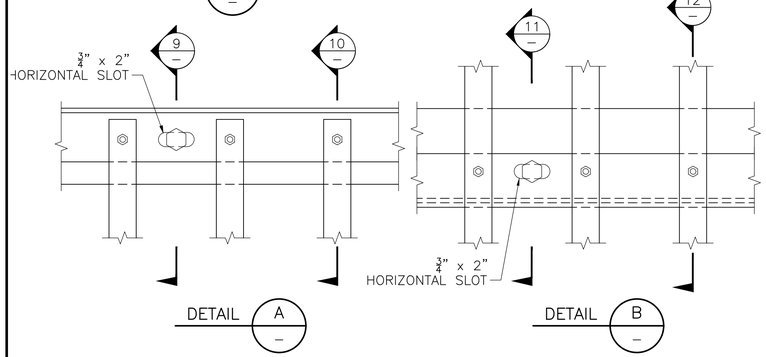
SECTION 11 –



SECTION 10 –

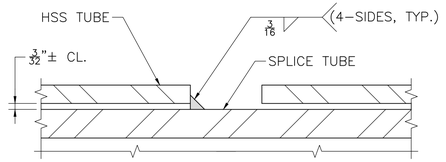


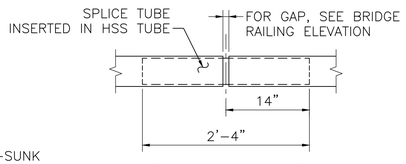
SECTION 12 –



TYPICAL PICKET TO RAIL DETAILS

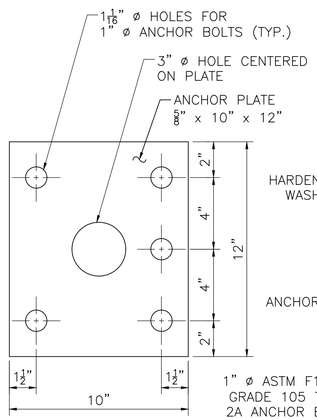
SCALE: 3" = 1'-0"





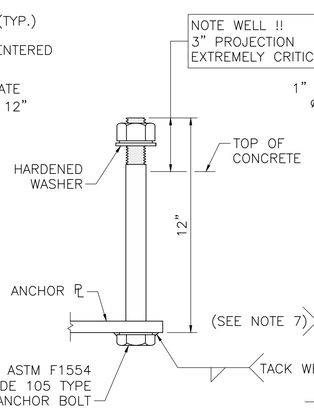
TYPICAL SPLICE

SCALE: 1" = 1'-0"



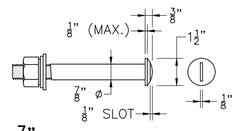
ANCHOR PLATE

SCALE: 3" = 1'-0"



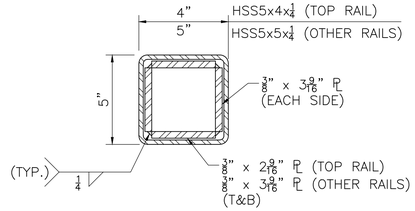
ANCHOR BOLT

SCALE: 3" = 1'-0"



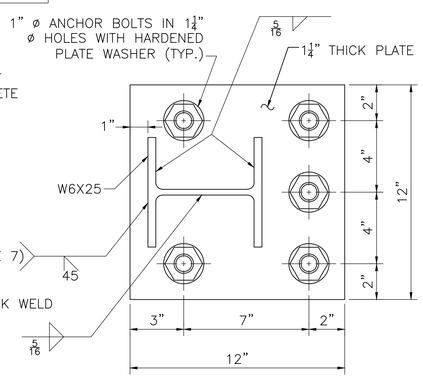
⅞" ø ROUND HEAD BOLT

SCALE: 3" = 1'-0"



SPLICE TUBE DETAILS

SCALE: 3" = 1'-0"



BASE PLATE

SCALE: 3" = 1'-0"

RAILING NOTES:

1. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING (HSS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 500 WITH A CERTIFIED Fy = 50 KSI MINIMUM. THE MINIMUM HORIZONTAL BENDING RADII OF THE HSS TUBING SHALL BE 8 FEET. PICKET CARRIER ANGLES, ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 36. PICKET TUBING SHALL CONFORM TO ASTM A 513 WITH Fy = 36 KSI MIN. OR A 500 GRADE B.
2. ALL STEEL (EXCEPT THE ⅝" ANCHOR PLATE AND FASTENERS) SHALL BE PAINTED BLACK (FEDERAL STD. 595B COLOR NO. 17038). ANCHOR PLATE SHALL BE GALVANIZED ONLY. HEADS OF ⅞" ø ROUND HEAD BOLTS SHALL BE PAINTED TO MATCH RAIL.
3. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN AFTER STEEL IS IN PLACE.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR (4) POSTS WITHOUT SPLICES WHERE POSSIBLE. IN ADDITION SPLICES SHALL ALSO BE LOCATED IN RAILS OVER BRIDGE EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. POST TO FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING. BEVEL OUTSIDE FLANGES OF POST. FIT POST TO BASE PLATE. WELD 5/16" FILLET ON INSIDE OF FLANGE AND WEB. BACKGOUGE OUTSIDE OF FLANGE TO SOUND METAL. COMPLETE GROOVE WELD WITH MINIMUM OF ⅛" REINFORCEMENT. WELD IS THE SAME ON BOTH FLANGES.
7. ⅞" ø ROUND HEAD BOLTS SHALL CONFORM TO THE CHEMICAL AND PHYSICAL REQUIREMENTS OF ASTM F3125 GRADE 325 TYPE 1 GALVANIZED.

DATE	DESCRIPTION
APRIL 30, 2025	ISSUED FOR BID
USE ONLY PRINTS OF LATEST DATE	

SHEET 9 OF 9 SHEETS BRIDGE NO. W-40-029 (2D8)

16421.00_BR(DETAILS).DWG Plotted on 30-Apr-2025 2:26 PM